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CONTENTS AND SUBJECT INDEX

Modified "Coutard" Roentgen Therapy. James M. Martin, M.D., and Charles L. Martin, M.D., Dallas, Texas....605
Discussed by Drs. Quick, Rypins, Pfahler, Lenz, Ray, Trostler and J. M. Martin.

Roentgen Diagnosis and Treatment of Tumors of Bladder. George E. Pfahler, M.D., and J. H. Vastine, M.D., Philadelphia....609
Discussed by Drs. Ferguson, Barringer, Dolan and Pfahler.

Changes in the Gastro-Intestinal Tract in Deficiency States. T. T. Mackie, M.D., and R. E. Pound, M.D., New York....613

Arteriography. Edgar V. Allen, M.D., and John D. Camp, M.D., Rochester, Minn....618
Discussed by Drs. Maes, Pearse, Wright and Allen.

The Relief of Menopause Symptoms by Estrogenic Preparations. E. L. Sevringhaus, M.D., Madison...624
Discussed by Drs. Novak, Pratt, McCullagh, Hofbauer and Sevringhaus.

The Electrostethograph. Walter L. Bierring, M.D.; H. C. Bone, M.D., and M. L. Lockhart, B.S., Des Moines, Iowa....628

Arthritis. William P. Argy, M.D., Washington, D. C....631

CLINICAL NOTES

Diagnostic Problem of the Causation of Dyspnea. Lewis M. Gaines, M.D., Atlanta, Ga....632

Cevitamic Acid (Ascorbic Acid) in the Treatment of Infantile Scurvy. Arthur F. Abt, M.D., and I. M. Epstein, M.D., Chicago....634

GLANDULAR PHYSIOLOGY AND THERAPY

The Lactogenic Factor of the Pituitary. Oscar Riddle, Ph.D., Cold Spring Harbor, N. Y....636

Chromatophorotropic Principle of the Pars Intermedia of the Pituitary. Bernhard Zondek, Jerusalem, Palestine....637

THERAPEUTICS

The Therapy of the Cook County Hospital. Edited by Bernard Fantus, M.D., Chicago. Therapy of Acne and Acne Rosacea. Outline by Theodore Cornbleet, M.D....639

COUNCIL ON PHARMACY AND CHEMISTRY 641

EDITORIALS

IMPORTANT
House of Delegates Adopts Policies on Sickness Care . . . 652

The Sterols of Blood Plasma....653

Referred Pain from the Stomach.654

Viosterol and Gallstones....655

CURRENT COMMENT

The Automobile and Diabetes...655

(Subject Index on next page)

ASSOCIATION NEWS 656

RADIOLOGIC SERVICE IN UNITED STATES

Report by the Council on Medical Education and Hospitals....642

List of Physicians Specializing in Radiology....642

Physicians Specializing in Radiology in Government Service....651

A. M. A. CONVENTION, ATLANTIC CITY, N. J., JUNE 10-14, 1935

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SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A. House of Delegates policies on sickness care E-652
Abortion, missed, treatment....672
Academy of Medicine of Madrid, second centennial 669
Acne and acne rosacea, therapy....*639
Adrenals, adrenalotropic substance of hypophysis ab-692
Advertising of ethical drugs, Hungary....667
Aguilar, Florestan, death....669
Alcohol, poison, 34 deaths from....660
Alopecia areata 674
Amniotin for menopause symptoms....*624
Anemia, pernicious, coproporphyrin I from feces ab-685
Aneurysm, arteriography *621
Angina Pectoris, total thyroidectomy in..ab-681
Arteries, peripheral, roentgen study....*618
Arteriosclerosis, arteriography....*621
Arthritis; cystine in nails vs. blood sedimentation *631
recent advances in....672
tubercle bacillemia in polyarthritis....ab-694
Association News....656
Asthma, splenic extract....ab-691
Automobile and diabetes mellitus....E-655

Baseball finger 674
Birth Control bill....663
Bladder tumors, roentgen diagnosis and treatment; pneumocystograms *609
Blood, experimental conservation....ab-696
groups, clinical limitation....665
sedimentation in arthritis....*631
sterols of plasma....E-653
Board Examinations....675
Bones, mechanism of parathyroid hormone action ab-688
sarcoma, roentgen treatment....ab-688
Book Notices....676
Books Received....Adv. page 42
Brain, encephalography in Alzheimer's disease ab-687
Breast cancer, radium dosage in....ab-683
Bronchus cancer, bronchoscopic biopsy...ab-686

Cancer, modified "Coutard" x-ray therapy.*605
facilities, New York City....660
research at London hospital....664
Cerebrospinal Fluid pressure, amyl nitrite effect on ab-694
Chemistry, International Chemical Building opened, Paris....666
Chiropractic schools, campaign against, N. Y. 660
Chromatophores, principle of pituitary....*637
Cinchophen cirrhosis, coproporphyrin I isolated from urine....ab-685
Coitus to free vesicles of gonococci....674
Colitis, ulcerative, changes in gastro-intestinal tract in....*613
Congress, U. S., medical bills in....657; 663
Conjunctivitis, allergic 673
Corporations: optometry; right to practice..Ml-679
Cosmetic industry, regulating, Hungary....667
Council on Pharmacy and Chemistry....641
Cystadenoma, pseudomucinous, of ovary....673

Deaths 670
Deficiency Disease, gastro-intestinal changes.*613
Deodo, produce a dermatitis?....674
Diabetes Mellitus, glycogen formation in..ab-684
death rate from automobile and, the same E-655
alimentary glycosuria or....674
Diphtheria, reduction in death rates....663
Dwarfism, action of growth hormone on..ab-694
Dyspnea, causation of, problem....*632
ephedrine in 673

Eclampsia, late sequels....ab-695
Electrostethograph records heart sounds...*628
Emergency Relief, medical referee for, Iowa.658
Empyema, irrigation and iodized oil treatment ab-693
Endocrine functions, restitution of....ab-692
Eyelids, ptosis 674
Eyesight swindlers active again....656

Fat metabolism in pregnancy....ab-692
Fellowship, medical, at Geneva....663
Fetus, expulsion after intra-uterine death..ab-691
Finger, baseball 674
Fingerprints, can they be changed?....665
Fistula, arteriovenous, arteriography in....*622
Foods, trichinosis; liability of packer....Ml-679
Foot and Mouth Disease, none in U. S....674
Foreign Letters....664

Gallbladder, roentgen study, oral, intensified method ab-687
calculi and viosterol....E-655
Gastro-Intestinal Tract, changes in deficiency states *613
Glaucoma, primary, treatment....ab-688
Glycosuria, alimentary, or diabetes mellitus.674
Goiter, Exophthalmic, thyroid histology...ab-696
Gonorrhea, sexual intercourse to free vesicles.674
Government Services....663
Gynecology, surgery, endocrine functions restored ab-692

Hair roots, filamentous change in scalp inflammations ab-684
Hatfield Lectures 662
Health department, budget of, France....665
department, new district, Michigan....659
in Denver 657
inspection of Indians....662
public, another district, Baltimore....659
public, in Hungary....667
U. S. Public Health Service....663
Heart, disease, interlobar effusions in....ab-681
enlargement, factors concerned in....ab-681
function, Tijerstedt's efficiency factor...673
sounds, electrostethograph for recording.*628
valves, position ab-681
Hospital, Willard, new superintendent, New York 660

Indians, inspect health....662
Infants, balconies for, in apartment houses.664
Infection, focus of, in true rheumatism..ab-696
Insanity, presenile, encephalography in..ab-687
Insurance, life: "due proof" of disability Ml-679
health, House of Delegates adopts policies E-652
Intestines, carcinoid tumors of small....ab-682
changes in deficiency states....*613
tuberculosis, calcification in....ab-683

Jaundice, hemolytic (familial), porphyrin in feces ab-685

Kidney disease, late sequels of eclampsia.ab-695

Labor, delivery as work process....ab-694
dealing with aftercoming head....ab-689
delivery of breech with extended legs..ab-690
Lactation, factor of pituitary....*636
Leprosy, can finger prints be changed?....665
Licensure, Indiana reestablishes reciprocity with Illinois 658
Liver cirrhosis (cinchophen), isolation of coproporphyrin I ab-685
disease, Congro red test in....ab-691
Lungs cancer (primary), bronchiogenic..ab-686
cancer (primary), classification....ab-686
disease, Wassermann reaction in....ab-696
tumors, palpable metastases of lymph nodes in ab-693

Malaria, reactivation by calcium chloride.ab-692
Marriages....670
Medical Examinations and Licensure....675
Medical Library Association meeting....663
Medicine, profession of, crisis, Paris....665
Medicolegal....679
Meetings, Coming Meetings....680
Mendel, L. B., awarded Conné Medal....657
Meningitis, tuberculous, tryptophan test..ab-695
Menopause symptoms, relief by estrogenic preparations *624
Menstruation disorders, hormone disturbances cause ab-695
"safe period" ab-695
Mercury excretion after oral administration ab-684
Metabolism, intermediate, in pregnancy..ab-692
Morfit, John C., dinner to....659

Nails, cystine content in arthritis....*631
Nerve, optic atrophy, trauma, and syphilis.673
Neurofibromatosis, pigmentary and osseous form ab-691
Neurology, International Congress....664
child, research in....661
New and Nonofficial Remedies....641
News....656

Obesity, castration, anterior pituitary in..ab-692
Odorono, produce a dermatitis?....674
Ovary, pseudomucinous cystadenoma....673

Pain, referred, from stomach....E-654
Paralysis, facial, operative treatment....ab-689
Parathyroid, hormone action, mechanism..ab-688
Peptic Ulcer, histidine therapy....ab-690
referred pain in....E-654
Pharmaceuticals, restrict advertising....667
Pharmacologist, new, in Food and Drug Administration 663
positions open for....663
Pharynx, cancer, external roentgen irradiation ab-683
Physicians, longevity 668
specializing in radiology....*642
Pigmentation, principle of pituitary....*637
Pituitary Body, action of growth hormone on dwarfism in mice....ab-694
adrenalotropic substance of....ab-692
anterior lobe in castration obesity....ab-692
chromatophorotropic principles *637
hormone, lactogenic factor....*636
Pneumocystograms, of bladder tumors....*609
Pregnancy and physical exertion....ab-693
autoreaction of Zondek-Aschheim, ovary changes from ab-690
intermediate metabolism ab-692
Psychoneuroses, reading material in....674
Pulse, arterial, aid in palpation of....ab-694

Queries and Minor Notes....672

Rabies, stations for treating....667
Radio Program....656
Radiologic service in the U. S....*642
conference, Boston 659
Rheumatism, true, infection focus in....ab-696
Roentgen Rays, study of back scatter for.ab-687
Roentgenotherapy, modified "Coutard"....*605

Salivary Gland calculi ab-686
Scalp, inflammations, pseudo-ectothrix....ab-684
Scurvy, infantile, cevitamic acid for....*634
Semmelweis, play based on his life....667
Shoulder, scapulobrachial algesias....ab-691
Skin cancer, primary squamous self-healing ab-688
disease, splenic extract in....ab-691
Smallpox immunity and vaccination incisions.666
Social services, colossal expenditures, England 664
welfare conference, Pittsburgh....661
Société royale de médecine, centenary, Belgium 668
Society Proceedings....680
State Board election, Oregon....661
State Board Examinations....675
Sterols of blood plasma....E-653
Stomach cancer, cause of dyspnea....*632
cancer, why it is not recognized early.ab-682
referred pain from....E-654
Surgery, future of....668
Sweat, deodorants produce dermatitis?....674
Syphilis, infectivity 672
trauma and optic atrophy....673

Tachycardia, paroxysmal, without evidence of heart disease....673
Tauffer, Vilmos (William), death....667
Theelin, relief of menopause symptoms....*624
Therapeutics of Cook County Hospital....*639
Thomas Oration in urology....661
Thoracocautery, Jacobaeus, preventing wound complications in ab-693
Thrombo-Angiitis obliterans, arteriography.*620
Thrombosis, coronary nonpainful features.ab-683
Thyroidectomy, total, in angina pectoris..ab-681
Tonics and Sedatives....Adv. page 36
Torula, cutaneous ab-684
Trauma, syphilis and optic atrophy....673
Trypanosomiasis, tryparsamide and eye complications 668
Tubercle Bacillus, bacillemia in polyarthritis ab-694
method of culturing....ab-693
Tuberculosis, pulmonary, reticulocytes in.ab-694
workers, institute for....659
Tularemia, Maryland....659
Typhoid bacillus, properties of Vi antigen.ab-688

Umbilicus, lipid exchange in circulation..ab-685
Urine incontinence, surgery for....ab-695
Uveoparotid tuberculosis ab-689

Verruca, tar ab-682
Viosterol and gallstones E-655

Wagner bill, House of Delegates on....E-652
Wassermann reaction in febrile pulmonary disturbances ab-696
Water, drinking, regulating sale, Belgium..668
Workmen's Compensation Acts: herniotomy; postponement of operation as affecting compensation Ml-680
poisoning; pain; death from septicemia.Ml-680
(over-exertion); rupture of artery attributed to Ml-680
Worthing, H. J., new superintendent at Willard Hospital 660

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MODIFIED "COUTARD" ROENTGEN THERAPY

JAMES M. MARTIN, M.D.
AND
CHARLES L. MARTIN, M.D.
DALLAS, TEXAS

Roentgen rays have been used in the treatment of malignant tumors for thirty-four years, but the general acceptance of technics delivering efficient dosages has been a very slow process. Pusey [1] reported cases of proved carcinoma of the lip treated successfully with many times an erythema dose twenty-seven years ago, but most dermatologists are still unwilling to use such effective therapy through fear of injury to normal tissues. Experienced radiologists discovered long ago that the actual cure of carcinoma requires the administration of from 5 to 10 erythema doses of x-rays, and even more in some instances. However, the first well presented proof of this fact was brought forward by Martin and Quimby [2] in 1930, when they showed that the actual cure of adult squamous cell carcinoma requires from 7 to 10 erythema doses.

When considered in retrospect it now seems odd that the German so-called massive dose or carcinoma dose plan should have been so generally accepted when it was presented just after the World War along with other new ideas, such as increased depth doses, back scattering and shorter wavelengths. The new technic was designed to deliver from 100 to 120 per cent of an erythema dose to all parts of the malignant tumor as an effective procedure in spite of the fact that complete clinical cures had not been previously observed with such dosages. Although clinical improvement occurred, permanent results were most disappointing.

Since it had been our practice to use from 5 to 12 erythema doses as an effective treatment for squamous cell carcinoma of the skin for more than ten years, we naturally viewed the new "carcinoma dose" with some misgiving and used it in high voltage roentgen therapy with the hope that the shorter wavelengths might possess some unknown properties that would compensate for the reduced dosage. Such did not prove to be the case in our experience, and we began to cast about for a more effective technic. In 1925 Pfahler proposed his saturation method before the International Congress of Radiology in London. At that meeting he said "Very few radiologists at present believe that every carcinoma cell can be killed by a single massive dose." He adopted the theory for the rate of decay of radiation effect in the tissues proposed by Kingery.[3] So far as we have been able to ascertain, this theory was based on no actual clinical evidence. According to Pfahler's plan, an erythema dose was rapidly built up in a few days and small doses were then given at short intervals, the technic being so arranged that each small dose theoretically restored the level needed to produce an erythema. This plan utilized a much larger total amount of radiation than the old massive dose procedure, and it was therefore more effective. However, reference to figure 1 shows that when this technic has been carried out for a month only a little more than 2½ erythema doses have been delivered, even when no decay is allowed for. Since most carcinomas require higher dosages than this, some more strenuous plan is desirable.

High voltage therapy is used principally in treating tumors situated beneath normal structures, and investigators have made many attempts to increase the tumor dose without materially increasing the effect on the normal tissues; in other words, they have tried to increase the selective action of the rays. In America this activity has been directed for the most part toward the production of huge tubes and machines operating at higher voltages and producing much shorter wavelengths. So far the improved efficiency has not seemed to justify the large financial outlay involved. In Europe, investigators have been more interested in changes in intensity (roentgens per minute) and in the time consumed in administering radiation. Results possessing great promise have been obtained from these studies.

The experiments of Regaud and Ferroux [4] formed the foundation for this work. It was first shown that a dose of filtered x-rays large enough to sterilize a rabbit's testicle completely would produce marked necrosis in the overlying skin when it was all given at one time. However, when the dose was given in five equal fractions over a period of from thirteen to seventeen days, sterilization through destruction of the cells in the testicle still took place but the skin showed no irreparable injury. These observations indicate that the total effect on the more embryonic cells was not materially changed by the fractionization of the dose, whereas the damage in the superficial normal tissues was much less than one would be led to expect from Kingery's theoretical curves.

Read before the Section on Radiology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

1. Pusey, W. A.: The Principles and Practice of Dermatology, New York, D. Appleton & Co., 1907.

2. Martin, H. E., and Quimby, E. H.: Calculations of Tissue Dosage in Radiation Therapy, Am. J. Roentgenol. **23**: 173-196 (Feb.) 1930.

3. Kingery, L. B.: Saturation in Roentgen Therapy: Its Estimation and Maintenance: A Preliminary Report, Arch. Dermat. & Syph. **1**: 423-433 (April) 1920.

4. Regaud, C., and Ferroux, R.: On the Diverse Reactions of the Tissues Treated by Roentgen Rays in Relation to the Time Factor, and on the Relativity of the Biologic Dosimetry in Roentgen Therapy of Malignant Tumors, Ztschr. f. Krebsforsch. **32**: 10-26, 1930.

The possibilities accruing from the practical application of such observations are at once apparent. In 1920 Coutard [5] began to treat patients with malignant conditions of the pharynx and larynx with huge doses divided into many fractions and administered over a period of several weeks. He used excessive filtration to reduce the intensity, but the voltage was not increased above the usual range. After making many changes he finally adopted a technic utilizing 190 kilovolts, 2 mm. of zinc filter, 5 milliamperes of current, and a target skin distance of 50 cm. With these settings he found that one skin area could be given 5,000 roentgens (about 8 erythema doses) without the production of irreparable skin damage, when it was divided into ten equal parts given in ten successive days. It is true that the superficial layers of the skin were removed by this procedure; but the reaction

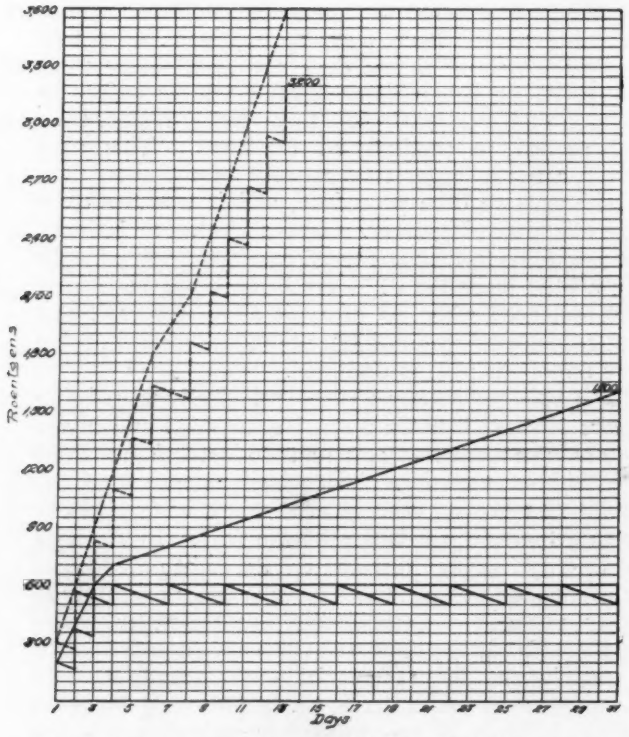

Fig. 1.—Curves illustrating the cumulative effect of fractional doses. The solid lines represent a saturation plan and the broken lines the Coutard plan. In each instance the upper curve represents the total dosage, whereas the lower broken line is calculated in accordance with the theoretical curves of Kingery.

was relatively painless and healing occurred in a few weeks, the tissues being left soft and pliable and apparently not seriously damaged. When the treatment was applied to the side of the neck, the mucous membranes showed a severe reaction and formed a superficial membranous exudate, but healing was fairly rapid and no sequelae remained during long periods of observation. From his experience Coutard found that a dose of 3,500 roentgens delivered to squamous cell carcinomas of the larynx and pharynx was sufficient to produce a complete regression, which was permanent in many instances. Kingery's theory was disregarded, the tumor dose being figured without any allowance for decay of the radiation effect between treatments. The skin reactions could be reduced somewhat by giving part of the exposure from each side of the neck and calculating depth doses by the accepted methods.

Between 1920 and 1926, Coutard treated a group of 212 cases, many of which were inoperable. Despite the fact that the technic was being constantly changed and improved during this period, 20 per cent of the group remained symptom free at the end of five years. This is indeed a creditable showing.

In Germany the method is rapidly gaining favor. Kahlstorf [6] has verified the reduction in skin effect resulting from fractionization of large doses, using rabbits as experimental animals. Schwarz [7] attributes the increased selectivity to the low intensity and advises that it be lowered even further. Juul [8] has shown that fractionization definitely increases the selective action of rays on animal tumor implants. Holthusen [9] believes that fractional dosage and an increased time factor are much more important in increasing selective effects than is a reduction in wavelength. Reisner [10] has begun what should be a most valuable line of investigation in that he is studying the effects of various elapsed time intervals between treatments on the total dosage. Schröder [11] and Gunsett [12] report favorable results in the treatment of carcinoma of the cervix with the Coutard method. Zuppinger [13] has used it to produce marked improvement in patients suffering from cancer of the sinuses, cheek, tonsil, tongue, vocal cords, larynx and parotid, as well as resistant cases of lymphosarcoma.

The chief objection to the Coutard technic is the amount of time involved in its administration. According to the original plan, treatment was given for two hours each day and this procedure was continued for a period of several weeks. Not only is the cost of such a procedure excessive but only a few patients can be treated at one time in a clinic of average size.

In an effort to offset these objections we have arbitrarily adopted a method utilizing 200 kilovolts, a filter of 0.75 mm. of copper and 1 mm. of aluminum, a target-skin distance of 50 cm. and a milliamperage of 6. With these settings we obtain 12 roentgens per minute (without backscattering) at the skin surface and can administer 300 roentgens in twenty-five minutes. When fourteen such doses (4,200 roentgens) are given in sixteen days (no treatments on Sundays) to one skin area, a marked reddening and desquamation with scattered areas of very superficial ulceration occurs. When sixteen doses (4,800 roentgens) are given in eighteen days, complete denudation of the skin occurs, a moist, raw looking surface being left. Areas treated usually measure not more than 15 cm. on a side. With both methods, healing is complete in most instances in from three to five weeks. During the period of reaction the patient complains of some discomfort and has a little fever, but he has none of the severe pain that all experienced radiologists have learned to associate with necrotic areas produced by

5. Coutard, H.: Roentgen Therapy of Epitheliomas of the Tonsillar Region, Hypopharynx and Larynx from 1920 to 1926, Am. J. Roentgenol. **27**:313-331 (Sept.) 1932.

6. Kahlstorf, A.: Investigation of the Skin Tolerance for Protracted Fractional Roentgen Therapy, Strahlentherapie **38**: 499-520, 1930.

7. Schwarz, G.: On the Theoretical and Practical Foundations of Radiation Therapy with Small Doses Extended Over Long Periods of Time, Strahlentherapie **37**: 709-718, 1930.

8. Juul, J.: Single Massive Dose, Fractional Dose or Saturation Method, Strahlentherapie **38**: 623-640, 1930.

9. Holthusen, H.: The Biologic Principles of Protracted Irradiation, Strahlentherapie **42**: 881-898, 1931.

10. Reisner, A.: The Skin Erythema Course in Fractional Administration of Large Amounts of Radiation, Fortschr. a. d. Geb. d. Röntgenstrahlen **45**: 293-307 (March) 1932.

11. Schröder, R.: First Experience with Coutard's Intensive Roentgen Treatment in Female Genital Carcinoma, Strahlentherapie **41**: 67-72, 1931.

12. Gunsett, A.: Nine Years of Fractionated and Protracted Dosage in the Roentgen Therapy of Cancer, with Some Remarks on Intravaginal Dosage in Roentgen Therapy of Cancer of the Cervix Uteri, J. de radiol. et d'électrol. **15**:685-692 (Dec.) 1931.

13. Zuppinger, A.: Results of Protracted Fractional Roentgen Therapy of Malignant Tumors, Strahlentherapie **43**: 701-718, 1932.

very large single doses of radiation. When the treatment is given over the neck, the mucous membranes of the mouth and pharynx show a reaction of the type described by Coutard. For a week or ten days the throat is quite sore and swallowing is so difficult that it is often necessary to use a nasal tube. However, the reaction in the throat usually clears up more rapidly than the skin reaction.

Our economy of time is brought about through a reduction in filter from 2 mm. of zinc to 0.75 mm. of copper. Contrary to the belief of many, this produces only a slight change in the wavelength so long as the voltage remains the same. Whether the increase in intensity to more than twice that used by Coutard will make any material difference in the selective effect remains to be seen.

Before undertaking the calculation of efficient depth doses we felt that the amount needed to destroy a malignant tumor on the surface should be determined. For this purpose the patient shown in figure 2 was selected. The growth measured almost 3 inches (7.5 cm.) in diameter and was about 1 inch (2.5 cm.) thick in its thickest portion. A piece of tissue was removed and diagnosed by Dr. George T. Caldwell as squamous cell carcinoma, grade 3. Since this type of malignant growth has a radiosensitivity similar to that found in tumors of the pharynx, it offered us a good chance to check Coutard's effective dosage of 3,500 roentgens.

Thirty-six hundred roentgens was divided into twelve equal parts and administered to the tumor and the surrounding skin during a period of thirteen days, one area being used. The right eye had been enucleated many years before and the deformity in this region had no connection with the malignant tumor. In a week after the cessation of therapy the skin was quite red and showed marked desquamation but no ulceration. The tumor melted away rapidly, however, leaving a granulating wound at the point of its attachment to the underlying bone. This wound has closed in slowly, so that a clean healing ulcer about three-fourths inch in diameter now marks the site of the original lesion. The patient is symptom free and the appearance indicates that the dosage was correct. This case supplies data that will be useful in calculating the proper amounts of radiation for other types of tumors. Figure 2 shows that the normal skin in the treated area has been in no way damaged by the treatment.

The broken lines in figure 1 indicate the dosage used in this case. The upper line represents the amount of radiation effective in the tumor, according to the experiments of Regaud and Ferroux. The lower broken line is plotted in accordance with the theory of Kingery and indicates that the radiation effective in the skin at the end of thirteen days amounts to 3,200 roentgens. Since we know that such a dose would produce necrosis if given at one time, it seems quite evident that Kingery's curves do not truly represent the effect of radiation on normal skin. Curves should be worked out representing the tolerance of skin and other normal tissues for fractionated doses and no doubt this will be done in the near future. We particularly need such data for the mucosa of the intestinal tract and other internal radiosensitive structures.

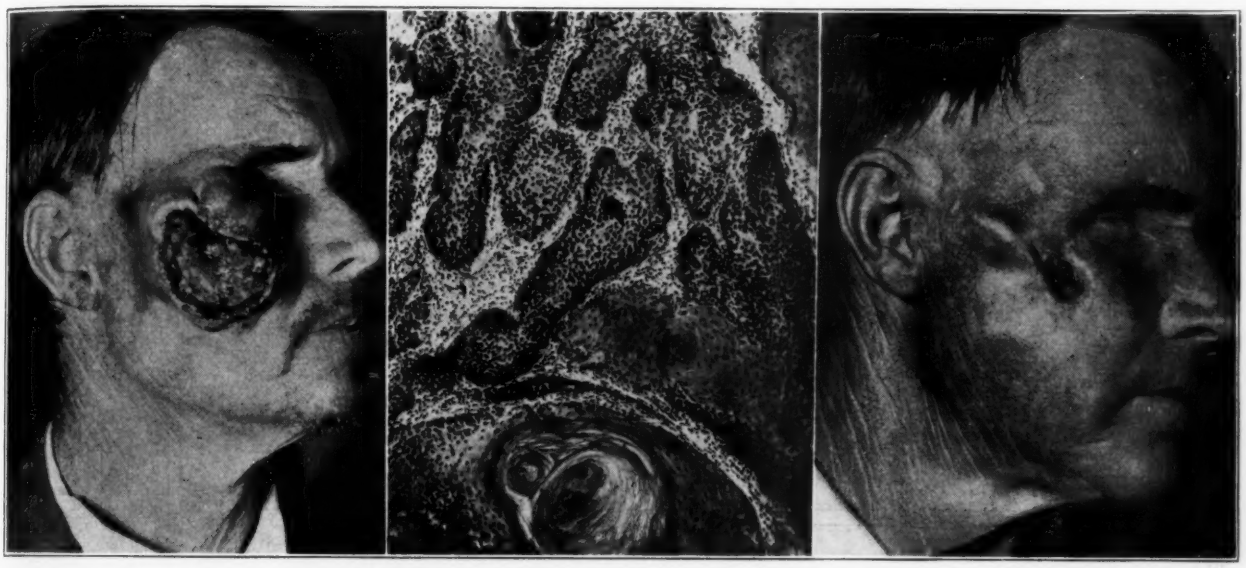

Fig. 2.—A case of squamous cell carcinoma, grade 3, treated by our modified Coutard technic. A total of 3,600 roentgens was delivered to one area in twelve equal doses in a period of thirteen days. The photograph on the right was made after four months. The lesion has almost healed.

Since we have used our modified technic for only a little more than a year, we cannot offer any statistical data of value and submit this paper only as a preliminary report. Twenty-five patients, most of them with inoperable conditions, have been treated and in practically every instance the improvement has been marked and has seemed amply to justify the temporary discomfort produced. This series includes cases of carcinoma of the cervix, ovary, breast, rectum (squamous cell type), mouth, pharynx, liver and larynx, and a radioresistant lymphosarcoma of the mediastinum. Tumors of the pharynx have shown miraculous improvement. Martin and Pflueger[14] described the extreme radiosensitiveness of neoplasms in this region and it constitutes therefore one of the most favorable of the internal sites for the Coutard therapy. Large breast tumors and their metastases have also responded well, and the method certainly has a definite place in the treatment of inoperable conditions.

We have on several occasions used this technic in cases of advanced carcinoma of the mouth in which

14. Martin, H. E., and Pflueger, O. H.: The Comparative Radiosensitivity of Pharyngeal Tumors, Radiology **17**: 425 (Sept.) 1931.

radium implantation had produced only partial regression. In each instance little or no added improvement was obtained, and the patients were made more uncomfortable. This outcome was of course to be expected, since there is usually little to be gained by the repetition of any radical plan of radiation therapy if the first attempt fails.

There is undoubtedly a large field of usefulness for fractionated external dosage in connection with interstitial radium implantation. In some clinics the external therapy is being administered with a large radium pack. Healy has found it most advantageous to give a preliminary series of roentgen treatments to the pelvis, using a modified Coutard plan before applying radium in carcinoma of the cervix. The roentgen therapy alone causes a definite regression of the primary tumor, thereby lessening the chance of infection, and it also delivers more effective dosage to the broad ligament regions. The combined technics render radiation therapy more complicated and time consuming but the main goal is an increase in efficiency.

has been low and I believe that he has stressed this point as being advantageous on account of the more prolonged exposure which it necessitates, or permits, depending on which view one cares to take of it. This is one of the factors which the authors have altered as a matter of economy in both time and expense. Filtration also is variable, and opinion, both clinical and physical, is by no means unanimous. The authors have utilized here again the more economic filtration. In the original Coutard work and in the work of the authors, the distance has remained at 50 cm. This again is a variable factor and many radiologists feel that it can be increased to advantage. The quantity of radiation, in other words the number of roentgens delivered in an individual exposure, alters the actual time of the individual exposure and consequently has its influence on the total period to be consumed in the full round of treatment. By adjustment of these factors and variations of the total quantity of radiation being used, the total treatment interval may be adjusted anywhere from a fortnight to six weeks. For several years I have employed a set of factors very close to those of the authors, except with filtration, which has been slightly heavier (0.87 mm. of copper plus a secondary aluminum filter). I have checked over a number of these cases and find that our total quantities of radiation agree surprisingly well. This principle of multiple

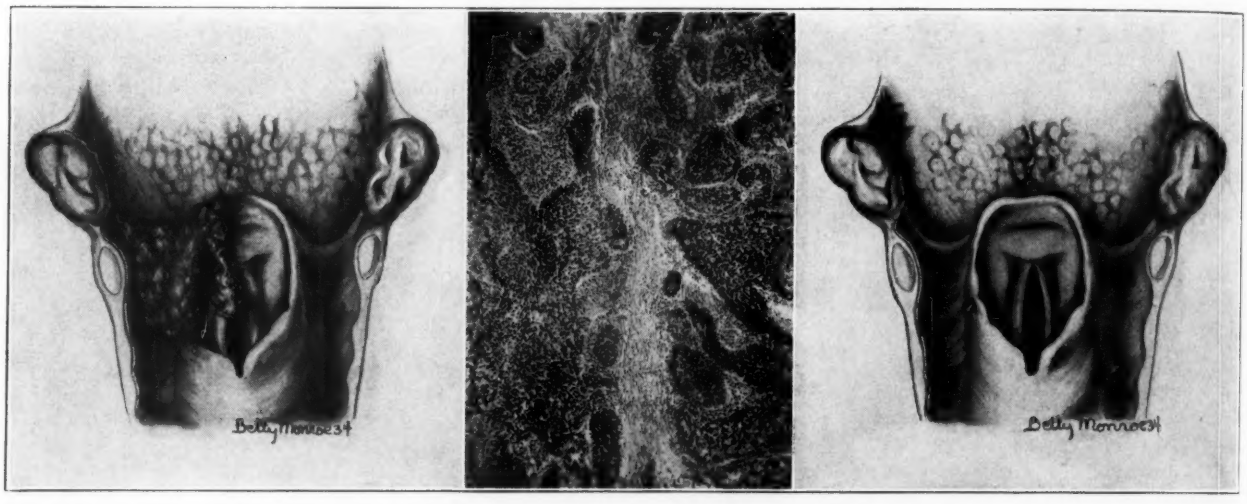

Fig. 3.—Squamous cell carcinoma, grade 3, of the pharynx and larynx, which was producing dysphagia and marked dyspnea. The drawing on the right was made three months after the completion of the modified Coutard technic, when the patient was entirely symptom free.

SUMMARY

1. The technic of high voltage roentgen therapy has progressed from the single massive dose through the saturation method to the more modern Coutard plan.

2. Coutard has definitely increased the selective action of x-rays on malignant tissue by reducing the intensity with excessive filtration and prolonging the time by the fractionization of very large doses.

3. A modification of the Coutard technic here described is apparently efficient and much less time consuming than the French procedure.

Baylor University Hospital.

ABSTRACT OF DISCUSSION

DR. DOUGLAS QUICK, New York: The Coutard technic is really the statement of a principle rather than the enunciation of a definite and rigid technic. The principle involved is that of multiple exposure, for the most part daily, with 200 kilovolts equipment approximately, which over a period of from three to five or six weeks, in certain instances, produces a membranous reaction on the mucous membrane of the mouth or throat and secondarily a superficial destruction of skin. There are various factors, any one of which may be varied. Voltage is reasonably standard around 200 kilovolts, but need not necessarily remain so. The milliamperage as employed by Dr. Coutard divided doses has brought about more general interest in roentgen therapy than anything since 200 kilovolt radiation was ushered in a few years ago by the German "massive dose" technic. So many factors are variable that a study of the variations possible, from the clinical standpoint, is fascinating. Clinically, radiologists are governed in doing this by close observation of the reactions, and guided to a degree by their associates from the laboratory, not forgetting that beyond a certain point clinical reactions and physical laboratory calculations may possibly become divergent.

DR. E. L. RYPINS, Iowa City: Since syphilis is a common complication in malignant growths of the neck and pharynx, I wonder whether the authors noticed if the skin of people with syphilis and carcinoma was more sensitive to irradiation, provided they were getting intensive antisyphilitic treatment at the same time.

DR. G. E. PFAHLER, Philadelphia: The authors referred to the saturation method of treatment. I want to call attention to the fact that neither Kingery, Pfahler nor Coutard originated the principles underlying the technic described. It involves practical dosage carried over long periods of time and Dr. Coutard has very wisely added higher filtration. He has taught that in certain localities, particularly the neck and face, or wherever there is abundance of good circulation, irradiation can be carried to a much severer degree or higher dosage than was formerly thought possible. One who attempts, however, to carry that dosage to the same degree over the abdomen will regret it. I have talked this over with Dr. Coutard and he agrees that

in principle there is no difference whatever between the saturation method and the Coutard method. I would like to correct the authors on one point: if they carry this method out properly, they will do as I am doing, give from six to eight erythema doses in four weeks. That is exactly what Dr. Coutard is giving. Dr. Reisner, working in the Hopefelder laboratories in Frankfort, has shown that the saturation curves which I drew are too high, that the dosage is too low, and I agree with him I have increased that dosage along these saturation curves. As a safe procedure I have increased the dosage 20 per cent at each point. I think it probably can be increased more. The advantage of these so-called saturation methods is that if one does what the authors have done, instead of treating the patient twice a day as I recommended in 1925 one finds it necessary to treat them once a day, or if because of illness or some other interruption the patient cannot get there for two, three or four days, the saturation curve will enable one to bring the dosage up and give the required dosage. With regard to the higher filtration or wavelengths, if I could handle the thousand kilovolt apparatus with the facility that I can handle the 200 today, I would unquestionably use a million volts and higher filtration; but the difficulty which I see in that technic is that it is too cumbersome and one sacrifices in the ability to direct the rays carefully what one gains in other respects. That will be overcome in the future. All that is needed is to apply one's energies as has been done with the 200 kilovolt dose, the technic of which is just being learned. Physicians should not allow themselves to be carried away too much by these physical experiments. Clinical observations have taught them more in medicine than anything else.

Dr. Maurice Lenz, New York: When five years ago I started treating carcinomas of the pharynx and larynx and other malignant growths with the Coutard method modified as regards time of treatment, I felt as enthusiastic as the authors do today. I am still as enthusiastic as they are about administering 25 roentgens, 10 roentgens or, as the Memorial does, 65 roentgens per minute, provided the field used is small; i. e., not larger than 7 by 7 or 8 by 8 cm. However, when the same technic is tried in larger fields (20 by 20 or 15 by 20 cm.) difficulties are apt to arise. In such fields when I gave 25 roentgens per minute, with the proviso that the total dosage was up to 3,000 roentgens, complications arose, whereas I was able to give this dosage when the field was less than 10 by 10 cm. I believe the crux of the situation is size of field when the dosage is as large as Coutard uses. If the daily administration of roentgens ranges somewhere between 300 and 400 roentgens, fields as large as 15 by 20 cannot be used if 65 roentgens or 25 roentgens per minute is to be given. For such fields there is no short cut. One has to stick, I believe, to either what Coutard says or might go up to 10 roentgens per minute.

Dr. A. G. Ray, Jackson, Ohio: It is the end results that tell more than anything. I have a 65,000 volt machine—very low voltage, I will admit; but the results are good. I use 3 milliamperes and give an exposure of ten minutes until the patients get the erythema; then I put it down to 2 or 1.5 milliamperes and always give an exposure of ten minutes. I give exposures five days apart and give eight exposures. I have treated more than a hundred epitheliomas and carcinomas. One carcinoma of the bone was arrested and the patient lived four years. In a sarcoma of the breast, the ulcer was about 3 inches wide. I exposed that fourteen times at intervals of five days, taking off the dead tissue every time the patient came in until the gland was removed. The cure lasted eight years, when it recurred in the lung. I have given the exposures empirically. I think from the results of sixteen years' experience with three x-ray burns, I obtained a basis and I have been acting on that basis ever since. I have never failed to cure an epithelioma.

Dr. I. S. Trostler, Chicago: I have a method by which one can protect oneself from lawsuits. A statement releasing the radiologist, an ordinary release given before the treatment, has no force at all; but if one has the patient sign a statement worded as follows, "Recognizing that I have a disease which will destroy my life, I hereby give consent to the use of unusual and extraordinary methods in the treatment of my case," one will be protected.

Dr. J. M. Martin, Dallas, Texas: The discussion brought out some very helpful points. While we are enthusiastic about the Coutard method and are fairly well satisfied with the modified technic adopted, we are aware that there are other modifications of this method that will produce equally good results. In referring to Dr. Pfahler's saturation technic, I was quoting from his London paper. I am glad to hear him say that his total dose in roentgens has been materially increased. Replying to Dr. Trostler: While the dermatitis is considerable in all these cases, we have had no legal complications. Usually a surgeon, a dermatologist and a pathologist see these cases with us. Most of the patients so treated have advanced carcinoma with one foot in the grave. We go into details in telling them just what to expect and how long they will be in recovering from the effects of the treatment. After recovery the gratitude of these people is unbounded. These cases should always be kept under observation and control. Ultraviolet ray treatment for the dermatitis is harmful. Likewise sunburn over the areas treated will aggravate the dermatitis. I want to thank Dr. Quick for his liberal discussion of my paper. If there is a better modification of the Coutard method of treatment, we will be glad to learn about it. The radiologist is the only hope for these unfortunate cancer victims.

THE ROENTGEN DIAGNOSIS AND TREATMENT OF TUMORS OF THE BLADDER

THEIR SERIAL STUDY WITH PNEUMOCYSTOGRAMS, SHOWING RESULTS OF TREATMENT BY IRRADIATION

GEORGE E. PFAHLER, M.D., Sc.D.
AND
JACOB H. VASTINE, M.D.
PHILADELPHIA

So far as we have been able to find, pneumocystography was first used in the diagnosis of tumors of the bladder by one of us (Pfahler) in 1908, and this method was discussed by him at various roentgenology meetings from time to time. A formal presentation was made together with a lantern slide demonstration of a number of tumors of the bladder before the Philadelphia Roentgen Society on May 8, 1919.[1] However, Braasch says: "Air was used in the bladder for the demonstration of a diverticulum by Kellar in 1904" (reference not given).

This method of study of tumors of the bladder we believe should be used as a routine because of the valuable primary and supplementary information that is obtained. We believe that pneumocystography cannot replace cystoscopy, but in the management of a serious condition such as tumors in the bladder, nothing that would be helpful should be neglected. Pneumocystography is harmless and painless and requires no great amount of paraphernalia. Therefore it can be used in conjunction with cystoscopy or, at times, when cystoscopy cannot be performed. In many cases the examination by a cystoscopist is not practical for one of the following reasons:

1. Because of the fear of pain that generally accompanies cystoscopic examinations.
2. Because of the inability to pass the cystoscope.
3. Because of severe hemorrhage, which clouds the field of vision in the bladder.
4. Because an expert cystoscopist is not always available.

Read before the Section on Radiology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

1. Pfahler, G. E.: The Injection of Air for the Roentgen Diagnosis for Tumors of the Bladder, Am. J. Roentgenol. **6**: 371-375 (Aug.) 1919.

5. Because of possible objections on the part of patients, which leads them to postpone or refuse a cystoscopic examination and thus delay the diagnosis.

TECHNIC FOR PNEUMOCYSTOGRAM

It is our custom to make a general film of the entire urinary tract posteriorly, and one smaller film anteriorly of the bladder, preceding the injection of air. These preliminary films will demonstrate any opaque calculus but they are particularly useful in demonstrating any localized collection of gas in the rectum or pelvic colon which might otherwise be confusing in the interpretation of subsequent pneumocystograms.

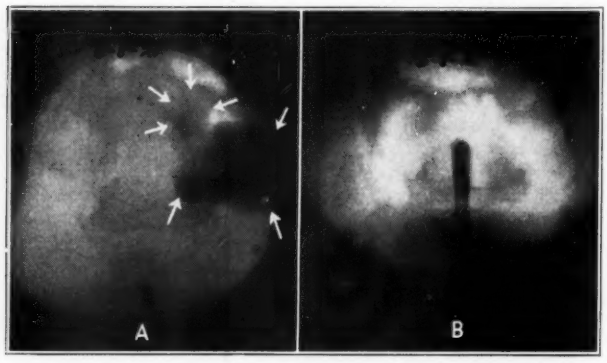

Fig. 1 (case 1).—A. T. J. T., a man, aged 49, referred March 21, 1925, by Dr. F. J. Dever on account of carcinoma of the glans penis, which had existed for one year. Treated successfully by radium, x-rays and electrocoagulation. *A*, three years later, June 8, 1928, the patient returned with a history of hematuria for six months. The pneumocystogram shows an ulcerating, broad based tumor of irregular density, occupying the left wall of the bladder and extending over toward the region of the left ureter. It projected into the bladder 5 cm., and the base was 3 cm. A second tumor on the posterior wall of the bladder was approximately 2 cm. in diameter. *B*, after treatment by high voltage roentgen therapy and also by cystoscopic electrocoagulation, done by Dr. Wilbur Haines. A pneumocystogram, made May 8, 1929, shows tumors entirely gone. The bladder is normal throughout. The patient was still well, April 17, 1934, five years after treatment.

The urethral orifice is cleansed with an antiseptic solution. A sterile rubber catheter of the largest size that will pass easily is then lubricated and is introduced in the usual manner. Any retained urine is withdrawn, and a special effort should be made to extract all the urine, for if any fluid remains in the bladder it tends to obscure the presence of a tumor. If there is an obstruction from a prominent middle lobe of the prostate, it may be necessary to use a prostatic catheter. After this catheter is introduced, it is connected by means of glass tubing to an atomizer bulb. If one uses for this purpose glass tubing that is wide at one end, it is possible to introduce cotton so as to filter the air as it is injected. We believe that there is little danger of infection from any air injected, because it is not likely that the soil will be suitable for the development of any germs from the air.

After the urine has been withdrawn and the atomizer bulb firmly attached, air is injected by gentle compression of the thumb and index finger. The air is pumped into the bladder until the patient complains of bladder distention, or until distention of the bladder can be felt by palpation, or an outline is made by percussion. A pair of hemostatic forceps is then clamped on the catheter, and this is strapped firmly with the adhesive plaster to the surface of the thigh. To economize on time, all these preparations should be made in advance and the patient should be lying on the Potter Bucky diaphragm with the tube set in position, so that there will be no unnecessary delay or discomfort.

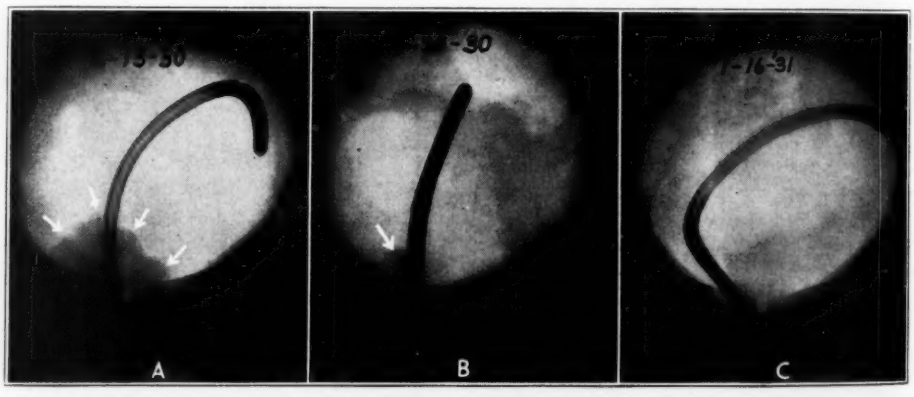

Fig. 2 (case 2).—Mrs. G. W. S., aged 55, was referred by Dr. J. M. Anders, June 13, 1930, on account of hematuria, for several months. *A*, tumor irregular in outline, with a broad infiltrating base surrounding the urethra, about the size of a hen's egg. The patient was given high voltage roentgen treatment. *B*, after three months, on Sept. 10, 1930, reexamination showed that five-sixths of the tumor had disappeared. All the patient's symptoms had gone. *C*, after six months, on Jan. 16, 1931, the patient was reexamined and all the tumor had disappeared. On July 28, 1932, examination showed that the bladder was entirely well. The patient is without any symptoms four years after treatment.

EXPOSURES

We usually make one or two films posteriorly first and then rotate the patient on to the abdomen, being especially cautious that the catheter is not disturbed in turning the patient on to the abdomen; then at least two additional films are made anteriorly. Most tumors are shown best in the anterior position, because most tumors occupy the posterior wall and therefore, when the patient is lying on the abdomen, the air surrounds the tumor. It is at times helpful also to make oblique anterior films. Especially is this valuable when diverticula are associated. If one chooses to demonstrate more definitely the presence of diverticula, it would probably be best to release the air by releasing the clamp and inject the bladder with an opaque solution, such as 12.5 per cent sodium bromide. We have not found the opaque cystograms of additional value in the diagnosis of tumors, but the opaque cystograms are especially valuable in the diagnosis of diverticula.

OBJECTIONS TO THE EXAMINATION

After making several hundred of these examinations, we can state definitely that no harm has ever resulted, and there is practically no more inconvenience to the patient than that which would follow an ordinary catheterization. We have never had any case of air embolus follow one of these injections, and there has never been any emphysema in the tissues. Bedrna and Simon have reported on 345 cases in which air was injected directly into the ureter and kidney pelvis with no complications. There certainly would be more risk from injection of air directly into the pelvis of the kidney than from injection into the bladder. The patient is always conscious and as soon as the patient complains of a sensation of fulness the injection is stopped. We believe, therefore, that no harm is likely to occur. Any external pressure effect from fecal matter in the rectum can easily be eliminated by pre-

liminary evacuation of the rectum, and the presence of any such matter can easily be determined by a preliminary digital examination by rectum.

INTERPRETATION

We have succeeded in demonstrating both benign and malignant tumors, varying in size from 1 to 8 cm. It is not always possible, of course, to make a pathologic diagnosis by means of pneumocystography as to malignancy or benignity, just as it is not always possible to make a diagnosis cystoscopically or macroscopically. In general, however, if a tumor is small, sharply defined and pedunculated, and especially if there are multiple tumors, the probabilities are that it is benign. If it is large, irregular on the surface and associated with a broad base, it is probably malignant. If the tumor has definitely infiltrated the bladder wall so that it cannot stretch normally, one obtains more definite evidence of a malignant growth than could be obtained cystoscopically.

Since urologists state definitely that all tumors of the bladder are potentially malignant, the important matter is to demonstrate the tumor and to get rid of it by the best means possible, according to the indications in any individual case.

TREATMENT OF TUMORS OF THE BLADDER

Through the kind cooperation of the surgeons and urologists with whom we have been associated, we have been privileged to make various combinations in the treatment of bladder tumors, such as (1) excision, preceded or followed by irradiation; (2) cystotomy and direct surface application of radium; (3) cystotomy, electrocoagulation, and insertion of radium needles or seeds; (4) cystotomy, electrocoagulation, and surface application of radium to the base of the tumor; (5) preliminary roentgen therapy, local destruction, subsequently followed by additional roentgen therapy, and (6) high voltage roentgen therapy, with high filtration, supplemented, if necessary, with electrocoagulation (through the cystoscope) of any remnant that does not respond to irradiation. Our most brilliant results, which have been the most pleasing to the patients, have been obtained by the last two methods.

*Relative Results Obtained by Various Methods**

Treatment	No. of Patients	Treated Prior to 3 Years Ago					
		Alive	Dead	Well	3 Year Survival	Dead	Not Traced
Suprapubic cystotomy, electrocoagulation, radium needles	43	4	39	4	9.2%	39	..
Surgical excision, postoperative roentgen therapy	7	..	7	..	.....	7	..
Surgical excision, radium pack in bladder, postoperative roentgen therapy	6	..	6	..	.....	6	..
Exploratory; tumor not removed; postoperative roentgen therapy	3	1	2	..	.....	2	..
Cystotomy; electrocoagulation; radium pack in bladder; postoperative roentgen therapy	5	1	4	1	20.0%	4	..
Electrocoagulation cystoscopically; postoperative roentgen therapy; radium postoperatively	11	4	7	2	33.3%	6	..
Irradiation only	18	7	11	5	33.3%	9	1
Total	93	17	76	13	15.0%	73	1

* Our previous publications gave a more complete discussion of the various methods of treatment other than high voltage roentgen therapy, supplemented by cystoscopic electrocoagulation.

Recently in the discussion of this subject before the Pan-American Medical Congress, Dr. Hugh Young stated that at least three fourths of the tumors of the bladder are inoperable, chiefly because approximately 75 per cent occupy the region of the ureters or the urethral orifice, and since all tumors of the bladder are potentially malignant it would seem that one must aim at early diagnosis, and early and thorough treatment by a combination of irradiation and perhaps, electrocoagulation. Small benign tumors are being destroyed daily by urologists by cystoscopic electrocoagulation, but it is also well known that these tumors commonly recur after such treatment; therefore it has seemed to Dr. Bothe and ourselves that it would be advisable to give preliminary irradiation, then destroy the tumors and follow it with an additional moderate amount of irradiation (fig. 4).

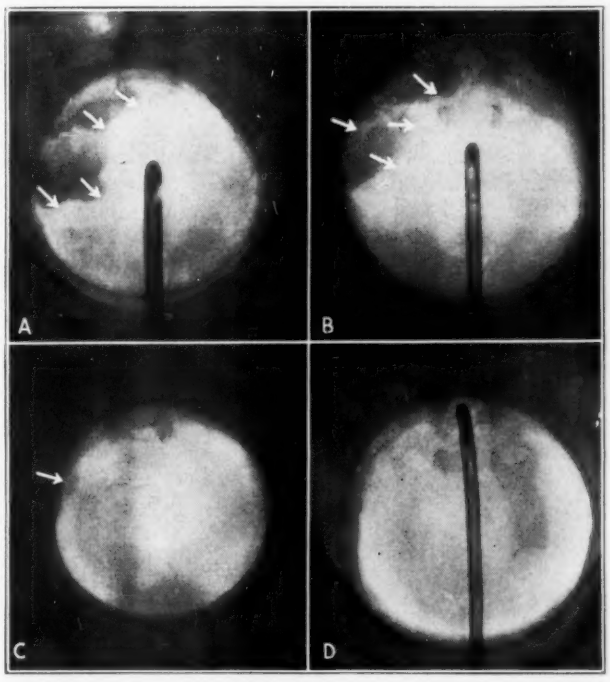

Fig. 3 (case 3).—A man, aged 54, was referred, May 8, 1933, by Dr. William Mackinney, on account of hematuria, for only two days. By cystoscope and by pneumocystogram *A*, there was found an ulcerating, infiltrating carcinoma involving 6 cm. of the upper left quadrant of the bladder, and located more anteriorly than posteriorly. It projected into the bladder 3 cm. *B*, a pneumocystogram made Sept. 11, 1933, four months after high voltage roentgen therapy was begun, shows that most of the infiltrating of the bladder wall was gone, the density of the tumor has decreased, and the size of the tumor has decreased about 50 per cent. The patient was treated only with high voltage roentgen therapy, 200 kilovolts filtered through 2 mm. of copper, the treatment being given through five different portals of entry, directed toward the tumor area. *C*, Jan. 8, 1934, a remnant of the tumor, which was finally destroyed by Dr. Mackinney with electrocoagulation. The patient was treated during a period of about six months, receiving a total of approximately 3,500 roentgens through each portal of entry. During all this time the patient continued his occupation as a practicing physician. *D*, May 24, 1934, the bladder wall was smooth in outline; the patient was symptomatically well, cystoscopically well, and well as shown by the pneumocystogram. Note the compete distention of the bladder and the perfectly smooth walls. If such results can be obtained, it will be a great inducement for patients to seek treatment early.

In dealing with large and definitely malignant tumors, no rule can be established, but a general plan of treatment should be laid out at the very beginning. Such a plan can probably be best and most practically made if there is a conference with the family physician, the urologist and the radiologist, for all three of these physicians need to cooperate in order to obtain the best results for the greatest number of cures.

We believe that when dealing with an inoperable case it is advisable to begin the treatment with the thought of overcoming the disease completely by irradiation, for if one succeeds with such treatment the

results are ideal. The bladder walls are restored to normal, the patient is scarcely interrupted from work, and bladder functions are normal. In order to carry out such radiologic treatment, it is necessary to use high voltage roentgen therapy, and we have used 200 kilovolts constant potential, with 2 mm. of copper filtration, usually at a distance of 50 cm., making use either of 2 or 4 milliamperes of current, so as to prolong the irradiation effect. The patient is treated daily, or preferably twice a day, usually with about 200 roentgens. The amount of the dose will depend somewhat on the reaction of the patient to treatment. We aim to deliver from 3,000 to 5,000 roentgens into the tumor area. The pneumocystogram is especially useful in outlining and locating the extent of the growth. This then permits the radiologist to direct his beam of rays toward this disease, and then there should be as much cross-firing as is practical; but one must be most cautious as to the dosage in the subcutaneous tissue. The subcutaneous tissue of the abdominal wall is not well supplied with blood vessels; therefore, heavy irradiation is more likely to be followed by fibrosis or necrosis.

In giving this radiation, it is our aim to deliver into the tumor tissue a full erythema dose as rapidly as is consistent with the patient's general condition. This usually requires from four days to a week. It is our aim, then, to keep the irradiation value in this tumor tissue up to the saturation value of an erythema dose, during a period of an additional three or four weeks. This requires a tremendous amount of treatment if it is carefully done. Under these circumstances the tumor may disappear completely (fig. 2), or the tumor may be reduced in size (fig. 3) and become more or less stationary. It may then be necessary to destroy the remainder by electrocoagulation cystoscopically, as has been done in association with William Mackinney. In giving these treatments, it is not only advisable always to measure the saturation value in each portal of entry and the saturation value in the tumor tissue, but one must take account of the total value of irradiation given through any portal. When treatment is given through the abdominal fat, some risk is involved when one exceeds a total of 300 per cent of an erythema dose. In certain parts of the body where the circulation in the subcutaneous tissue is good, it would be possible to give a total of 600 per cent of an erythema dose in divided doses.

As a result of irradiation, one commonly succeeds in arresting the hematuria, sometimes within a few days, generally within a few weeks. In the more sensitive group of tumors, one may expect the entire tumor to disappear (fig. 2). By means of the pneumocystogram, one is enabled to measure photographically the progressive reduction in the size of the tumor and, finally, to note its complete disappearance. It is also possible subsequently by means of the pneumocystogram to determine the absence of any tumor tissue in the bladder. The absence of a tumor in the bladder can be determined only if the work is thoroughly and skillfully done. In this work it is never economy to attempt to save on the use of films, for it is not infrequent to find a tumor not showing at all in one position and yet showing very clearly in another position.

CONCLUSION

Tumors of the bladder varying from 1 cm. to a large size can be demonstrated clearly by means of pneumocystograms.

The progressive enlargement or the progressive reduction can be shown and recorded photographically.

The method of examination is comparatively painless and harmless.

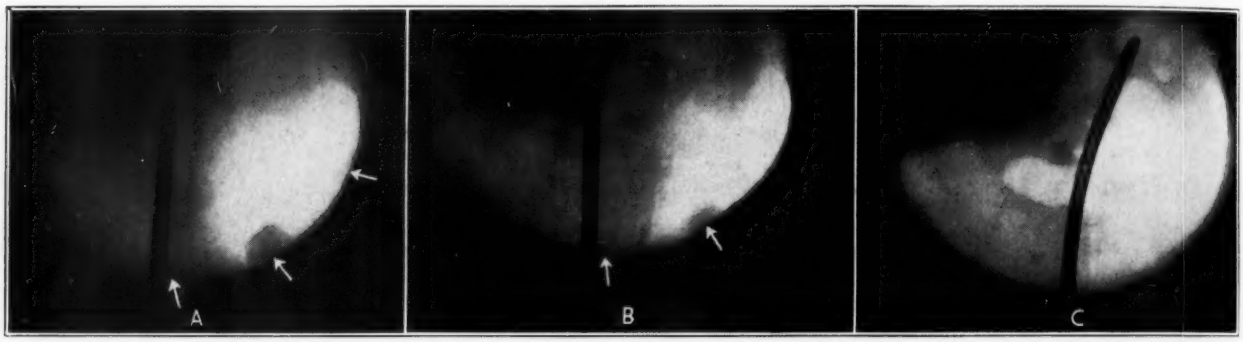

Fig. 4 (case 4).—A woman, aged 43, referred by Dr. Albert Bothe, on Oct. 26, 1933, had hematuria six weeks following a fall, with no pain. *A*, cystoscopic examination and pneumocystograms show a sharply defined tumor, approximately 2 cm. in diameter, located about 5 cm. to the left of the urethral orifice. This tumor has associated with it the shadow of a second smaller tumor, which has double the density but which is still sharply defined. A second papilloma is located at the left border of the sphincter, and approximately 0.5 cm. in diameter. A third papilloma is located about 8 cm. to the left of the sphincter. All these lesions have the appearance of being benign, as determined both by cystoscope and by pneumocystogram. *B*, Dec. 4, 1933, these lesions were reduced in density, and reduced in size, approximately 50 per cent. The third lesion at the left wall of the bladder is entirely gone. Following this pneumocystogram, Dr. Bothe destroyed the remainder of the tumors, cystoscopically. *C*, May 7, 1934, the tumors were entirely gone, and the bladder wall was smooth and healthy. The depression in the upper right border is due to the distended cecum.

Under treatment by high voltage roentgen therapy, one can record from time to time serially the progressive disappearance of the tumor.

1930 Chestnut Street.

ABSTRACT OF DISCUSSION

DR. RUSSELL S. FERGUSON, New York: The pneumocystogram that the authors have described and stated the value of in following the regression of tumors in the bladder is used more widely by the urologist than the authors suspect apparently. In 159 of 902 cases in the Bladder Tumor Registry, pneumocystograms were made. The procedure was said to be of value in the diagnosis of bladder carcinoma in 108 of these. The thing that the urologist does not appreciate, however, is the value of the x-rays in the treatment of bladder carcinoma. The x-rays were first used in this country by Gray in Richmond, Va., in 1906. He had the bladder opened and treated the tumor through a cone inserted into the bladder. That method, of course, under the conditions existing at that time, fell into immediate disrepute. The method has been revived recently by Rose in St. Louis, who has devised a stabilizing tractor for the bladder, and then treats it with low voltage x-rays, 85 kilovolts without any filtration whatever, and delivers

doses up to 2,000 roentgens at one sitting. This is most interesting. I await Rose's results with curiosity. A more favored technic, and one that I feel deserves development at the hands of the urologist, is the divided dose technic in bladder carcinoma. I think that some definite policy must be adopted in the management of these cases. Bladder carcinoma on the average will not yield to a tissue dose of less than 8 or 10 erythemas. This is shown by the work of Dean and Quimby, who measured the tissue doses delivered in the treatment of a series of bladder tumors. If any such dose is to be delivered by external means of irradiation, it must be delivered by the divided dose technic. That can be done and has been done successfully in the institution in which I work within the last eighteen months, by Dean. The best results, however, seem to be obtained when it is known in advance that the tumor is either a grade 3 or a grade 4 bladder carcinoma. Grade 1 and grade 2 carcinomas, especially those showing squamous pearls, are radioresistant and will not yield to the average dose that can be gotten into the bladder in this manner. I would therefore suggest to the radiologist that he urge the urologist to look more carefully into the possibilities of roentgen treatment of carcinoma of the bladder, adopt a policy of biopsy in every instance, utilize the Coutard technic or some modification of it in delivering tissue doses adequate to grades 3 and 4 bladder carcinomas, and avoid treatment of grades 1 and 2 tumors by that technic.

DR. B. S. BARRINGER, New York: Radiologists have used for many years the technic described by the authors. Stereoscopic pictures have been found to tell more than simple cystograms. I am inclined to think, from a urologic standpoint, that I can gain a better idea of the tumor from the pathologic examination and from an attempted grading of it than from the cystograms. I confess that in a certain number of cases I have been confused by the pictures and radiologists are not all as expert in reading the cystogram as are Drs. Pfahler and Vastine. I want to emphasize what Dr. Ferguson said about the treatment in the future by external irradiation of bladder tumors. Up to about a year ago there were two methods of treatment. I am now speaking of carcinoma, not papilloma. They were the only two methods that offered anything; one was removal by surgery and the other was radium applied suprapubically or through the cystoscope. I am biased. I have used radium. One can go further with radium than by operation. Tumors can be attacked that are quite inoperable with some chance of success by radium implants. However, there are certain tumors in the highest grade of malignancy, grade 4—fortunately they are rarely seen—that are not attacked by either operation or radium successfully. I have only one grade 4 tumor well eight years. Those tumors should be irradiated externally before anything is done, after the specimen and the cystogram have been examined, and then, if that does not do, the external radiation should be reinforced by some other form of internal radiation. Whether that is applicable to grade 3 tumors or not, I don't know. I think that extensive grade 3 tumors difficult to remove or irradiate should be attacked by preliminary external irradiation. That is the next move for the future and I think that probably 5 per cent should be added to five-year cures with the careful application of external irradiation.

DR. LEO DOLAN, Toledo, Ohio: In regard to advocating widespread usage of pneumocystograms, I would like to add a word of warning regarding the amount of air pressure used in the bladder. There exists the possibility of air embolism when considerable unmeasured pressure is used. The safer method of cystoscopy should be preferred to the possible dangers encountered in widespread uncontrolled pneumocystography.

DR. GEORGE E. PFAHLER, Philadelphia: One of the advantages of the pneumocystogram and of roentgen therapy is this: Urologists say that from 65 to 75 per cent of the carcinomas of the bladder are inoperable. Therefore radiologists certainly have plenty of material on which they should work and lives that they should try to save. Here is a method that can be used. The pneumocystogram may be of no particular value to the urologist. There is no thought of replacing cystoscopy, but if one has a picture of where that tumor is located and its size and degree of infiltration and can follow its progression, one can give more careful treatment and can direct the radiation better than one can by any description from the urologist. With regard to air embolism, I should like to know whether any one has produced an air embolism by this process. I haven't in approximately twenty-six years. Furthermore, I know that it is an accepted method of diagnosis to distend the pelvis of the kidney with air, as is done in the Schmieden clinic and in a number of others, and if there is no danger in distending the pelvis of the kidney with air or oxygen, certainly there is no danger in distending the bladder when the patient is conscious at all times and says "Doctor, that is hurting me."

CHANGES IN THE GASTRO-INTESTINAL TRACT IN DEFICIENCY STATES

WITH SPECIAL REFERENCE TO THE SMALL INTESTINE: A ROENTGENOLOGIC AND CLINICAL STUDY OF FORTY CASES

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AND
ROBERT E. POUND, M.D.
NEW YORK

Deficiency disease may result from a defective dietary or from abnormal physiology of the gastro-intestinal tract. Defective absorption constitutes one of the outstanding features of sprue and in certain cases has been shown to condition the development of the deficiency factors of the disease.[1] This occurs without extensive pathologic changes in the structure of the small intestine apart from atrophy that is not disproportionate to the general wasting of the body and the viscera.[2] We have observed advanced deficiency disease in several severe cases of ulcerative colitis. This suggested the possibility of a similar mechanism and led to the detailed clinical and radiologic investigation of a large group of cases of chronic ulcerative colitis.

Evidence of deficiency states was found in 63 per cent of seventy-five cases studied. These conditions have presented the characteristics of partial deprivation of certain vitamins, of protein, and of important inorganic elements. The diagnostic criteria have been limited to the objective changes that have been shown to occur in deficiency diseases. The buccal and lingual mucous membranes have presented abnormalities analogous to those encountered in sprue, pellagra and pernicious anemia. The skin has shown changes similar to those reported in vitamin A deficiency[3] and in pellagra. Nutritional edema has occurred in advanced cases without evidence of cardiac or renal insufficiency. Certain of the patients have presented abnormalities of the inorganic constituents of the blood, notably reduction of blood calcium and disturbance of the acid-base mechanism. One case showed peripheral neuritis similar to that occurring in beriberi.

The frequent occurrence of these deficiency states has led us to believe that they may play an important part in the pathology of chronic ulcerative colitis. They have been most numerous and most severe in advanced and serious cases of the disease, and less evident or

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1. Castle, W. B., and Rhoads, C. P.: The Etiology and Treatment of Sprue in Porto Rico, Lancet **1**: 1198-1199 (June 4) 1932.

2. Mackie, F. P., and Fairley, N. H.: The Morbid Anatomy of Sprue, Indian J. M. Research **16**: 799-826 (Jan.) 1929.

3. Loewenthal, L. J. A.: A New Cutaneous Manifestation in the Syndrome of Vitamin Deficiency, Arch. Dermat. & Syph. **28**: 700-708 (Nov.) 1933.

entirely lacking in the milder forms. It has seldom been possible to elicit a history of defective dietary. Consideration of possible etiologic factors suggested, among others, too rapid passage of the food constituents through the intestinal tract or abnormalities of the small intestine producing defective absorption of the products of digestion.

Three cases of sprue and thirty-seven cases of chronic ulcerative colitis have been studied radiographically to

Fig. 1.—Irregular size and shape of lumen and irregularities of mucosal pattern in a case of sprue. Barium collected in numerous irregularly spaced segments.

gather evidence on these points. The latter represent a wide variety of clinical and pathologic types. Nine patients who were seriously ill were hospitalized; the remainder were ambulatory. The colon lesions varied from the mild forms of localized proctitis to the advanced stage of extensive involvement of the entire length of this segment. The cases have been classified on the basis of the clinical observations. Clinical stage 1 includes all cases showing no evidence of deficiency disease; ten patients fall within this group. Clinical stage 2 comprises those presenting mild to moderate grades of such states; twenty-one cases are listed in this group. Clincal stage 3 is characterized by advanced deficiency states; six of the patients are included within this group.

Bacteriologic and serologic studies demonstrated infection by various strains of B. dysenteriae in nine of the thirty-seven cases of ulcerative colitis. Six others agglutinated stock strains of these organisms to diagnostic titer. The remaining patients fall within the classification of so-called nonspecific or idiopathic chronic ulcerative colitis.

The technic of the radiologic examination of the small intestine is as follows: A barium meal, four heaping tablespoonfuls of barium sulphate suspended in three fourths of an iced tea glass of water, is given to the patient about 9 o'clock in the morning, on a fasting stomach. In some of the first cases dextrose solution was used instead of water to determine whether or not food value in the meal was necessary. This did not alter the conditions found.

Following the ingestion of barium sulphate, a 14 by 17 inch film is made of the abdomen in the posterior-anterior direction with the patient prone, at intervals of five minutes, thirty minutes and one, two, four, six and twenty-four hours. These intervals are subject to variation. Each film is developed immediately after exposure, and as the changes appear the intervals may be varied to suit the individual case. We believe these to be the minimum number of examinations needed. After the six hour film or its equivalent the patient resumes his normal diet and no further fasting is required.

The voltage and milliamperage used should be adequate to secure clear, sharp detail with a maximum exposure time of one-fourth second. One-tenth second is preferable. These short exposures reduce the possibility of motion. The Bucky diaphragm is not necessary and motion is more apt to occur when it is used.

The two main changes encountered in the small intestine are variation in the contour and size of the lumen, and alteration of the normal motor phenomena. They vary with the severity of the process. In the third or severe clinical stage the characteristic changes are invariably present and easily recognized. In the first and second stages the changes are usually present but of lesser intensity, and occasionally no abnormalities are found.

Fig. 2.—Duodenal changes, dilatation, enlargement of the circular markings, collection of gas, upper jejunal coils filled, showing some widening of the mucosal markings.

The duodenum shows a thickening or widening of the circular markings in almost all severe cases and in certain of the moderately severe ones. The lumen is frequently dilated and contains gas. The appearance resembles duodenitis except that no contracture or spasm has been noted in any of the cases in this series.

In the jejunum the valvulae conniventes are thickened and the spacings between them widened. The normal mucosal pattern is distorted by the irregularities in the size of the valvulae conniventes. In the partially

filled segments it is often bizarre in appearance. The lumen is frequently dilated, and this dilatation may be confined to local groups of coils or isolated coils.

The barium usually passes very slowly through the jejunum and is apt to move by groups of coils. It tends to collect in a short segment while the segments proximal and distal are empty. The filled portion is dilated and smooth in appearance, and no peristaltic action is visible. All of the barium that has passed

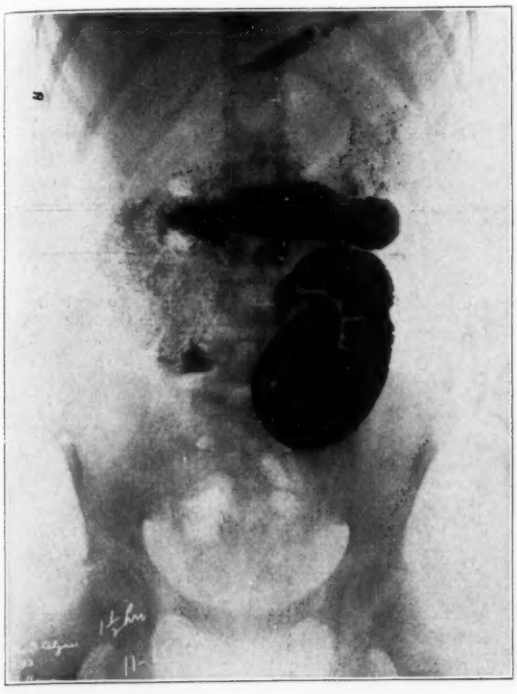

Fig. 3.—Collection of barium in isolated coils. Segments proximal and distal to the filled segments contain little if any barium; referred to as pocketing.

into the small intestine may be collected in a small group of coils. The intestine proximal and distal to the filled area is empty. At the subsequent examination the distribution is similar but the filled group lies at a lower level. There is no intestinal gas in the groups proximal or distal to the filled groups. When this so-called group movement is present, the stomach empties spasmodically. The flow into the duodenum is interrupted, apparently to correspond to the local delay in the forward progress of the barium.

The changes in the ileum are quite similar to those noted in the jejunum. The grouping of the coils may be abnormal, and isolated coils frequently assume a sausage shape. When a group of these dilated coils is filled with barium, the appearance is suggestive of a cluster of bologna. The barium frequently will collect in a very short dilated segment, presenting an appearance resembling a large diverticulum. The coils adjacent to this "localized pocketing" are empty. The lower ileum seems to be the site of most frequent and early involvement. Occasionally the barium passes rapidly through the terminal portion, but this is the exception rather than the rule. The course of the coils in this area is often straighter than normal, suggesting a lack of pliability. No definite ulceration has been demonstrated in any of our cases roentgenographically. No contractures have been present.

The outstanding feature of the rate of progress of the barium meal through the small intestine is that the rapidity is not increased over the normal. The rate of passage is subject to wide variation and does not necessarily conform to the clinical stage of the disease. The shortest emptying time was four hours. In five cases the small intestine was empty at the time of the last examination. In four cases more than six hours was required for the head of the barium column to reach the cecum. Twenty-four of the cases of ulcerative colitis and the three cases of sprue showed a definite twenty-four hour barium residue in the colon. This was distributed predominantly in the right half and occurred despite coexistent and active diarrhea. The barium enema in cases presenting the small intestine changes has shown no constant relationship between these abnormalities and the extent and the severity of the lesions in the colon. In numerous instances, changes in the small intestine have been associated with a normal cecum and proximal colon. It is evident, therefore, that they are not the result of extension by continuity of the inflammatory process in the wall of the colon.

We have encountered identical changes, varying only in degree, in the small intestine in three cases of sprue. One of these has been reported previously.[4] Snell and Camp [5] have recently noted similar phenomena in four cases of idiopathic steatorrhea or sprue.

These abnormalities in the small intestine we interpret to indicate varying degrees of edema of the mucosa, derangement of normal motor function, and abnormal variations in tone of the intestinal musculature. They

Fig. 4.—Pocketing in ileum. All barium collected in a short segment in midline; no barium proximal or distal to filled segment; cessation of gastric peristalsis.

vary in intensity and in extent in the individual case from time to time. In several instances reexamination after the lapse of a few weeks has shown marked improvement, and in others an increase in the severity of the process.

The actual pathologic condition underlying the roentgenologic changes is not definite. To correlate the

4. Mackie, T. T.: Nontropical Sprue, M. Clin. North America **17:** 165-184 (July) 1933.
5. Snell, A. M., and Camp, J. D.: Chronic Idiopathic Steatorrhea: Roentgenologic Observations, Arch. Int. Med. **53:** 615-629 (April) 1934.

phenomena visualized by x-rays with the structural changes occurring in the intestinal wall necessitates the study of biopsy specimens. The rapidity of postmortem change renders autopsy material an uncertain criterion of living pathologic changes in these tissues. Tissue for examination has been obtained from only four of the cases studied. In three of these a section of terminal ileum was removed surgically. However, one of these patients had a previously performed ileo-

Fig. 5.—Collection of barium in groups of coils of the "bologna type." Isolated pocketing. Irregular distribution in intestine. Changes in segment in left iliac fossa.

colostomy, which rendered interpretation of the changes uncertain although gross abnormalities of this segment had been noted at the original operation. In the fourth case the pathologic picture is complicated by an extensive inflammatory reaction in the serosa secondary to a terminal peritonitis following perforation. No sections of the upper part of the small intestine have been obtained for study during life, since surgical intervention in this region has not been indicated.

Microscopic examination of the sections demonstrated edema of the mucosa and submucosa, and slight infiltration by mononuclear wandering cells and round cells in all four cases. Specimens from two other cases, which were not examined radiologically, showed similar changes.

The nature of the processes leading to these phenomena is obscure. Three different mechanisms may contribute. They may result from actual infection of the intestinal wall, they may depend on local allergy, or they may represent an effect of the deficiency state.

Evidence of infection by B. dysenteriae was obtained in three of four patients from whom sections were secured. Bacteriologic studies of cases of dysentery examined post mortem have shown the bacilli to be present throughout the intestinal tract.[6] Soluble products of certain of these organisms when injected intravenously have been shown to exert a characteristic action on the intestinal tract of experimental animals. They produce edema, hemorrhage, necrosis and ulceration. These effects are most evident in the colon. Occasionally the ileum is similarly, though less acutely, involved. Accompanying the swelling of the villi and the edema of the mucous membrane there are cellular exudation into the submucosa and degenerative changes of the muscular layers.[7] It is improbable, however, that the changes which we have noted by roentgen and by tissue examination result from such a mechanism. The conditions found have been identical irrespective of the presence or absence of dysentery bacilli. There is a striking similarity in the roentgen changes found throughout the series, both ulcerative colitis and sprue,

Roentgen Observations in Small Intestine

Case	Chronic Ulcerative Colitis: Clinical Stage	Hours Required to Reach Cecum*	Barium Residue in Small Intestine	Mucosal Changes	24 Hour Barium Residue in Colon
1	3	3	7 hours	+	No
2	3	—6½	6½	+	Yes
3	3	5½	7	+	No
4	3	6½	7	+	No
5	3	—6	7	+	Yes
6	3	3½	6	+	Yes
7	2	3	3	—	Yes
8	2	4½	7½	+	No
9	2	4½	7	—	Yes
10	2	4	5	—	Yes
11	2	5	7	+	No
12	2	1	6	+	Yes
13	2	4½	5	+	No
14	2	3	6†	—	No
15	2	3½	5½	+	Yes
16	2	5	6	+	Yes
17	2	3½	5½	+	Yes
18	2	5	5	+	No
19	2	1	4†	+	No
20	2	1½	6½†	+	Yes
21	2	2½	5	+	Yes
22	2	1½	4½	+	Yes
23	2	—7½	7½	+	Yes
24	2	6	6	—	No
25	2	6	7½	+	Yes
26	2	6	6	+	Yes
27	2	4	4	+	Yes
28	2	2	6†	—	Yes
29	1	4	5†	+	No
30	1	1	7	—	Yes
31	1	6	6	—	Yes
32	1	1	6 slight	+	Yes
33	1	4	6	+	Yes
34	1	6	7½	+	Yes
35	1	8	8	+	Yes
36	1	2½	6½	+	No
37	1	6	6	+	
Sprue					
1		4½	7½	+	Yes
2		6	7	+	Yes
3		3	5	+	Yes

* Minus signs indicate failure of barium to reach cecum at the designated time.

† No barium present in small intestine at the designated time.

irrespective of the bacteriologic background. This indicates that the alterations in the small intestine are not the result of a reaction to a specific group of bacteria. Furthermore, the type and the scantiness of the cellular exudate, and the absence of degenerative changes do not imply an actively invading infection or excretion of an irritating, necrotizing toxin.

Certain of the clinical phenomena suggest a sensitization of the intestinal tract to foreign protein. Sudden variation in symptomatology has occurred with alteration of diet, or with autogenous vaccine therapy. Edema and smooth muscle spasm constitute the essen-

6. Thjotta, T., and Sundt, O. F.: Toxins of Bact. Dysenteriae, Group III, J. Bact. **6**: 501-507 (Sept.) 1921. Flexner, Simon, and Sweet, J. E.: The Pathogenesis of Experimental Colitis and the Relation of Colitis in Animals and Man, J. Exper. Med. **8**: 514-535, 1906.

7. Olitsky, P. K., and Kligler, I. J.: Toxins and Antitoxins of Bacillus Dysenteriae Shiga, J. Exper. Med. **31**: 19-33 (Jan.) 1920. Thjotta and Sundt[6]

tial pathologic response to the so-called allergic reaction. Although such a process might explain some of the changes that we have described, it does not afford a complete explanation. Reduction in muscle tone rather than hypertonicity or spasm is one of the outstanding features revealed by x-rays in these cases. The clinical evidence also is contradictory. Many of the cases with advanced small intestine changes presented no indication of sensitization. Conversely, certain cases in which

Fig. 6.—Movement by groups. Cessation of gastric peristalsis. Segments of intestine proximal and distal to filled area contain no barium. Mucosal irregularities in filled group.

such a process seemed to be operative showed no abnormalities on radiologic examination.

Abnormalities in the intestinal tract have been noted in experimental avitaminosis in animals. Gross [8] found reduced motor activity in rats immediately after the withdrawal of vitamin B from the diet. Plummer [9] reported that deficiency of this substance reduced the tone of the intestinal musculature and the amplitude, the rate and the length of time during which spontaneous contractions of an isolated segment occur. Similarly, Rose, Stucky and Cowgill [10] observed diminished motor activity of the dog's stomach when the animals exhibited the effects of advanced deficiency of this vitamin.

The association of clinical evidence of deficiency disease and the changes noted roentgenographically suggests that a relative insufficiency of the antineuritic vitamin may underlie the reduction of tone and the depression of motor function in the intestine observed in these patients. The data at present available are insufficient to evaluate this possibility. The rarity of peripheral neuritis may be advanced as evidence against such a concept, yet it is becoming increasingly apparent that minor degrees of deficiency disease exist that find no place in current nomenclature.

Demonstration of the changes in the small intestine raises the two fundamental questions of their importance and their relation to the development of the deficiency syndrome. There is a definite correlation between the roentgenologic and the clinical observations in the clinical stage 3 cases. The parallelism, although less evident, continues in the second stage, but it is conspicuously absent in the cases still in stage 1.

It is evident from reference to the table that all cases of ulcerative colitis far advanced clinically show extensive changes in the small intestine. It is equally true, however, that there may be extensive involvement of this segment without demonstrable clinical evidence of deficiency disease. It is perhaps significant that identical changes were observed in the three cases of sprue, although in two of them the disease was quiescent at the time of roentgen examination.

If these structural and functional alterations condition the development of deficiency states despite adequate diet, they must act either to inhibit normal elaboration of the diet substrate or to reduce absorption of the normal end products of digestion. In such an event the intestinal changes might be expected to occur before the functional impairment becomes evident clinically. Furthermore, in view of the storage capacity of the body tissues the appearance of clinical indications of deficiency disease need not coincide exactly in time

Fig. 7.—Irregularities of mucosal pattern; isolated pocketing. Note pattern of transverse loop at level of fourth lumbar vertebra.

with development of the underlying phenomena. The occurrence of intestinal changes in cases not showing deficiency symptoms therefore is not a fundamental contradiction.

The six cases in clinical stage 2 without abnormal conditions in the small intestine are difficult to account for, since deficiency signs were quite evident clinically. However, there are several possible explanations. The alterations observed by roentgenologic examination have been found to vary from time to time in the same

8. Gross, L.: The Effects of Vitamin Deficient Diets on Rats, with Special Reference to the Motor Functions of the Intestinal Tract in Vivo and in Vitro, J. Path. & Bact. **27**: 27-50 (Jan.) 1924.

9. Plummer, B. A.: The Motility of the Intestinal Tract in Experimental Beriberi (Rats) and Scurvy (Guinea-Pigs), Am. J. Physiol. **80**: 278-287 (April) 1927.

10. Rose, W. B.; Stucky, C. J., and Cowgill, G. R.: Studies in the Physiology of Vitamins: XIII. The Relation of Gastric Motility to Anhydremia in Vitamin B Deficient Dogs, Am. J. Physiol. **92**: 83-91 (Feb.) 1930.

patient. In several instances, reexamination after the lapse of a few weeks has shown marked improvement; in others, progression of the process. In neither case have the intestinal changes been closely paralleled by obvious alteration of the clinical picture. It seems possible, therefore, that a temporary enteric derangement may be followed by delayed effects. Other variables probably enter into the production of the final result. Anorexia leading to reduction of the total food intake, fever and toxemia, which increase the physiologic requirements for specific substances, and the quantitative factor of reduction in intestinal function are all important in the production of contradictions.

It is impossible at the present time to state whether the small intestine changes are a factor in the production of the deficiency state or the result of such states. The association of the two in the same patient, and the similar alterations observed in sprue suggest that these changes may impair absorption and thus contribute to the complex clinical picture of deficiency disease.

Fig. 8.—Bizarre pattern of mucosal folds in duodenum and small intestine.

CONCLUSION

1. Changes in the small intestine have been demonstrated roentgenographically in twenty-nine of thirty-seven cases of chronic ulcerative colitis and in three cases of tropical sprue.

2. The changes are those which could be produced by edema of the mucous membrane, disorganization of the normal motor activity, and reduction in tone of the intestinal musculature.

3. They are constantly present and most marked in the cases showing advanced deficiency states. In the milder cases the parallelism is not exact.

4. While the evidence does not warrant definite conclusions, the observations suggest that these changes in the small intestine are related to the deficiency states and perhaps play a rôle as a conditioning factor in their development.

16 East Ninetieth Street.

ARTERIOGRAPHY

A ROENTGENOGRAPHIC STUDY OF THE PERIPHERAL ARTERIES OF THE LIVING SUBJECT FOLLOWING THEIR INJECTION WITH A RADIOPAQUE SUBSTANCE

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AND
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The chief function of arteries is the transportation of blood. As far as the arteries are concerned, this function is dependent entirely on the size of and the presence or absence of obstruction of the lumens. The adequacy respectively of the entire arterial circulation of an extremity, and of its component parts, requires separate consideration. The situation is analogous to that which exists in the heart; the myocardium may function normally, even if the valves are functionally insufficient. In the extremities the arterial circulation as a whole may be adequate, even when some of its component parts are badly diseased.

There are many methods for determining the sufficiency of the entire arterial circulation to extremities, such as studies of the response of the temperature of the skin to artificially induced fever, spinal anesthesia, and block of peripheral nerves, analysis of symptoms, effect of posture on the color of the skin of the extremity, and palpation of the larger peripheral arteries. These and other methods leave little to be desired in determination of the efficiency of the arterial circulation as a whole. This situation is sharply in contrast to study of any of the component parts of the peripheral circulation. Arteries, except large arteries, are not ordinarily visualized roentgenographically unless there is calcification of the walls, and even then no information can be gained regarding their caliber. Palpation of pulsations in an artery furnishes valuable clinical evidence of its functional integrity, but pulsations can be felt only in a large artery such as the dorsalis pedis, posterior tibial, popliteal, femoral, radial, ulnar and brachial. Edema and obesity interfere with palpation of these vessels, and pulsation may be absent at the usual site of an artery because of congenital variations as well as disease. The surmounting of these difficulties, and of those regarding function of the component parts of the peripheral circulation, lies in visualizing the arteries by means of a radiopaque substance injected into the lumens. In addition, by its use, information may be gained regarding the nature of pathologic processes, and regarding methods of compensation for arterial occlusion.

Arteriography is almost as old as roentgenology itself, for Haschek and Lindenthal [1] reported the roentgenologic visualization of the arteries of an amputated hand and forearm following intra-arterial injection of a radiopaque substance, about eleven weeks after Roentgen discovered the rays. However, it was not until 1923 that the procedure was carried out on living subjects.[2] Earlier work concerning arteriography of

From the Division of Medicine (Dr. Allen) and the Section on Roentgenology (Dr. Camp), the Mayo Clinic.
Read before the Section on Radiology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Haschek, E., and Lindenthal, O. T.: Ein Beitrag zur praktischen Verwerthung der Photographie nach Röntgen, Wien. klin. Wchnschr. **9**: 63-64 (Jan. 23) 1896.

2. Edwards, E. A.: The Status of Vasography, New England J. Med. **209**: 1337-1343 (Dec. 28) 1933.

peripheral arteries has been reviewed by one of us [3] and by Edwards; in addition, visualization of the abdominal aorta and cerebral arteries has been reported by Moniz [4] and his associates, by Löhr,[5] and by dos Santos and his associates.[6]

SUBSTANCES FOR ARTERIOGRAPHY

The ideal arteriographic substance is one which can be injected into an artery without producing pain, or immediate or delayed toxic effects, and which is of good radiopacity in spite of the unavoidable dilution by the blood after injection. Various substances have been used: iodides and bromides of sodium, strontium, potassium and calcium, proteinated silver salts, iodized oil, skiodan, diotrast, neo-iopax, emulsified iodized oil, and thorium dioxide sol.[2] In most of our studies we have used thorium dioxide sol, which consists of from 19 to 20 per cent by weight of thorium dioxide. This substance is distinctly superior and meets the requirements for an ideal arteriographic substance, except for the possibility of an immediate or delayed deleterious effect. The immediate toxic effects of small amounts appear to be mild, of little importance, and to occur rarely. The substance is under suspicion chiefly because of the possibility of delayed effects due to radioactivity. As stated in a review by one of us, thorium is a heavy metal with some radioactivity, and thorium dioxide is extremely slowly excreted from the body, probably requiring years to be removed completely.[3] The possibility of eventual harm due to radioactivity can best be summarized as "suspected but not proved." Radt,[7] who has had extensive experience, observed animals and human beings respectively three and a half and two years after injection of thorium dioxide sol; harmful effects were not noted. He expressed the belief that the possibility of harmful effects is largely negligible, provided correct amounts are used and contraindications to the use of thorium dioxide sol are observed. Thorium dioxide sol has been used in many hundreds of cases for roentgenologic visualization of the liver and spleen and ordinarily for this purpose about 1 cc. per kilogram of body weight is necessary, although Erickson and Rigler [8] have reported satisfactory results with smaller amounts. Excellent visualization of the arteries of the upper extremity can be obtained following intra-arterial injection of only 5 to 12 cc. of thorium dioxide sol, the average amount of which is about 10 per cent of that ordinarily used for visualization of the liver and spleen. We have limited our studies largely to visualization of the arteries of the upper extremities, as larger amounts are needed for arteriography of the lower extremities. The dose used by us appears to minimize greatly, if not entirely to obviate, the possibility of harm. Erickson and Rigler, who have made extensive study of the possibility of harmful radioactivity of thorium dioxide sol, consider that a greater amount than that which we use is distinctly harmless.

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TECHNIC OF ARTERIOGRAPHY

The Upper Extremities.—The patient lies on the roentgenographic table with the film under the outstretched, supinated arm. An ordinary sphygmomanometer cuff is wrapped about the arm as near to the shoulder as possible. Under aseptic conditions the skin and the tissues around the brachial artery, just above the lacertus fibrosus, are anesthetized with 1 or 2 cc. of solution of procaine, 0.5 per cent.

The brachial artery is then entered with an ordinary venipuncture needle attached to a syringe containing the radiopaque material; as soon as the point of the needle is well within the lumen of the artery, and bright red blood pulses forcibly into the barrel of the syringe, the sphygmomanometer cuff is rapidly inflated above the systolic blood pressure and the radiopaque material is injected. The needle is quickly withdrawn, and as pressure is made over the point of puncture to stop any transient leakage, the first roentgenogram is made. The sphygmomanometer cuff is now quickly deflated to the level of the diastolic blood pressure for a period of two to four pulse beats, to permit the injected material to be carried more distally. Then the cuff is quickly reinflated to its previous pressure, and the second roentgenogram is made. The procedure is repeated for a third film. The cuff is now removed, and with a gauze sponge firm pressure is made over the point of puncture for a few minutes. Additional films, with the forearm in pronation or in the lateral position, may be made before the cuff is finally deflated.

Fig. 1.—Arteriogram showing the smooth outline and direct course of normal arteries. The collateral circulation is minimal.

The Lower Extremities.—The skin and tissues about the femoral artery, just below the inguinal ligament, are anesthetized. The artery is punctured in the same manner as the brachial artery; the lumen is occluded above the point of puncture by pressure of an assistant's fingers; the medium is injected, and a film is exposed. The assistant lessens the pressure on the artery, allowing a small amount of blood to flow, and occludes it again by pressure while a second roentgenogram is made. The procedure is then repeated for a third film.

Difficulties of the Method.—The radiopaque substance that is injected into the lumen of the artery is rapidly swept away by the blood, and adequate visualization of the arteries therefore depends on exposure of the film at the exact moment when the injected mate-

rial is present in the part of the artery that is to be studied. With some study and practice, the proper moment for exposure of the film can be determined accurately, and after some experience the technic of arteriography becomes relatively easy. Successful results demand the closest cooperation of the roentgenologist and completion of technical details with a minimum of delay, since the loss of a few seconds after the injection may result in failure. Difficulties arise when the arteries are small, when they are deeply situated or when there is abnormal irritability of the artery, resulting in apparent spasm. Occasionally one feels pulsations disappear from an artery when the point of the needle comes in contact with it. Successful injection of the artery is difficult or impossible under these circumstances.

When the procedure is expertly carried out, the patient experiences little or no discomfort during the injection. A slight degree of soreness may occur in the injected area as the anesthesia wears away. A mild anodyne and the application of moist, warm dressings relieve this if necessary. Symptoms of a general nature are almost entirely lacking following the injection.

Fig. 2.—Smooth diminution in caliber of the ulnar artery and a similar increase to normal size due to spasm.

The patient experiences distress of any consequence only if some of the material is injected into the wall of or outside the artery. Considerable pain, redness and increased temperature occur locally. These symptoms and signs persist for from one to three days and are best treated by the application of hot, moist packs and an anodyne. No permanent effects have been noted, even when large amounts of the medium have been injected outside the lumen of the artery.

INTERPRETATION OF OBSERVATIONS

In the interpretation of roentgenograms of the peripheral arteries, one is concerned chiefly with (1) congenital variations from the usual formation of the vascular system, (2) alterations in the lumens of arteries, consisting of irregularities in contour, diminution of caliber, and complete occlusion, and (3) the presence or absence of collateral circulation, and its situation and extent.

Care must be used in the interpretation of the roentgenograms, for apparent changes resulting from errors in technic of injection, or in timing of the exposure, may be erroneously considered as evidence of organic disease. The three roentgenograms made in the manner described should be studied together, for changes due to organic disease will be constant in each, while pseudodefects due to technical errors will vary in extent and type in the various films.

As might be anticipated, normal variations in formation of the arterial system are many. Certain vessels that are sought by the clinician in the physical examination of patients suspected of vascular disease may be absent congenitally, or they may be smaller in caliber than usual. Information concerning their status, and also that of other arteries normally too small to palpate clinically, for example the digital arteries, is readily determined from the arteriogram and is of considerable assistance to the examiner in doubtful or borderline cases of arterial disease.

The normal arteriogram is characterized by (1) smooth and uninterrupted contour of the lumens of the injected arteries, (2) direct course of these vessels, and (3) presence of no more than a minimum of collateral circulation (fig. 1). Ordinarily the lumen of an artery is fairly constant in size throughout its course, except occasionally digital arteries, of which the caliber progressively diminishes distally. Not all digital arteries of the same patient are uniform in size, but usually they are approximately uniform. The size of the lumen varies in different subjects, and a small artery alone is not primary evidence of disease. Most normal arteries pursue a direct course, and any change in the direction of a normal vessel is ordinarily a gradual or rounded change in direction and not abrupt or angular. One common exception to this rule is the rather sharp angulation in the course of the digital arteries of individuals of middle or advanced age, which we have interpreted to be evidence of arteriosclerosis, as it is not seen in normal arteries of younger subjects.

Spasm of a portion of an artery is characterized by smooth diminution in caliber to a point of complete or almost complete obliteration and an equally smooth increase in its size up to normal (fig. 2). This appearance may vary or disappear in subsequent films.

THE ROENTGENOGRAPHIC APPEARANCE OF DISEASED ARTERIES

Thrombo-Angiitis Obliterans.—The disease process, as shown roentgenographically in the upper extremities, is not uniform. Many phases of the process may be viewed in the same arteriogram, and arteries of normal appearance may be seen in close proximity to those that are extensively involved. There is no uniform tendency of the disease to progress in one direction, either proximally or distally, and one segment of an artery may be involved in a process varying from slight to extensive, whereas other segments of the artery may appear normal. A digital artery may fill normally while a companion artery is partially or completely occluded in the same comparative area. This patchy distribution of the changes is one of the characteristics

of the disease, which most commonly involves the digital and palmar arteries. The disease occasionally may attack the distal portions of the ulnar and radial arteries, but the middle portion of these two vessels is infrequently involved.

Three phases of involvement of an artery, based on the degree of occlusion revealed by an arteriogram, may be noted. The primary phase is characterized by

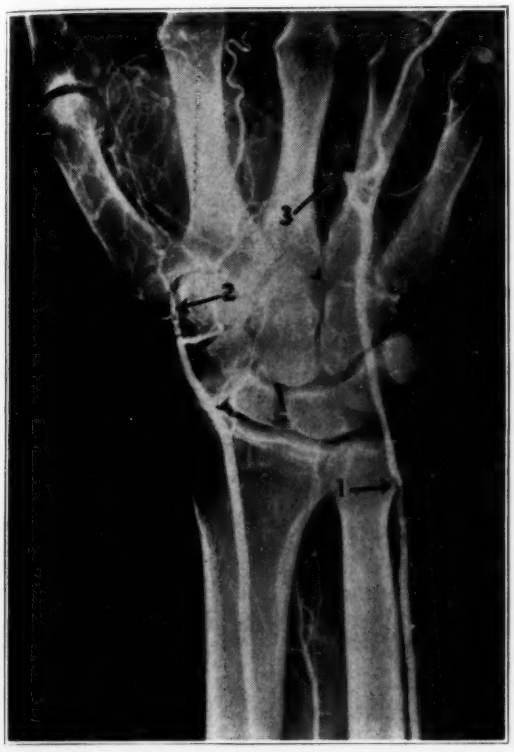

Fig. 3.—Thrombo-angiitis obliterans. The primary phase of involvement is revealed by a change in the smooth contour of the ulnar artery. The second phase is shown by marked reduction in the caliber and marked tortuosity of the lumen of the radial artery. As is frequently seen, a large collateral branch is given off from the radial artery above the point of occlusion. The final stage of involvement is illustrated by complete occlusion of the palmar arch.

a simple change in the contour of a segment of an artery. Instead of being smooth, the contour is irregular and the lumen varies in size. The filling defects are usually rounded in contour (fig. 3). In the secondary phase the shadow is shaggy and moth eaten in appearance. The lumen, which is greatly reduced in size, pursues an irregular and rapidly changing course and widens and narrows in an irregular manner. The channel may be divided in places as an island divides a stream, or it may be fine and twiglike (fig. 3). We do not know whether these appearances indicate a stage in progressive occlusion of the artery or recanalization of an artery once completely thrombosed. In the tertiary or final phase, complete occlusion of the artery has occurred. A distal or proximal segment may appear normal, or the entire artery may be occluded to the point of its usual termination. The point of occlusion is not abrupt, as if the artery had been ligated or cut across, but rounded, with the convexity toward the occluded portion. Occasionally a fine twig, or portion of diminished opacity, may extend a variable distance into the occluded portion (fig. 3).

Collateral Arteries.—The development of collateral arteries is an attempt to compensate for occlusion of the main trunks. The size, number and course of these vessels is remarkable. Our roentgenologic studies give no indication of the origin of these collateral vessels, but we assume that they are smaller arteries not usually seen in the normal arteriogram, which have enlarged to carry on the function of the occluded main trunks. We cannot exclude their development *sui generis.* Small collateral arteries are usually characterized by an irregular, tortuous course; the larger arteries may proceed as directly as the main trunks. Either may arise from the main artery at a right angle. A collateral branch may run parallel to an occluded segment of a main artery and thus may connect the uninvolved portions of an artery. Collateral arteries seen in extremities, where occlusion of the radial or ulnar arteries has occurred, may pursue their course for several centimeters and may themselves become involved by the disease. In an area where there has been extensive diminution of the arterial supply, the collateral vessels appear as numerous fine twigs pursuing irregular criss-cross courses. When the lower ends of the radial and ulnar arteries are occluded, the interosseous artery usually extends into the palm of the hand.

Arteriosclerosis.—We have not studied cases of occlusive arterial disease due to arteriosclerosis, because such a condition is rare in the upper extremities. In a case of advanced arteriosclerosis, the radial and ulnar arteries were found to have extremely irregular lumens,

Fig. 4.—Arteriosclerosis. The radial and ulnar arteries are shaggy and moth eaten in appearance and the lumens are reduced in size.

which were moth eaten in appearance and reduced in caliber (fig. 4). Distal to the wrist the radial, ulnar and digital arteries were normal in appearance, except for increased tortuosity of the last named.

Aneurysm.—We have had the opportunity to study one case of aneurysm of the popliteal artery. In this case the aneurysm appeared in the arteriogram as a regular saccular dilatation, surrounded by a rounded, soft-tissue shadow of increased density, which we inter-

preted as thrombosis (fig. 5). A few days after our study, the pulsating mass in the popliteal space increased in size and the pain increased in severity. At operation, a ruptured aneurysm of the popliteal artery was found.

Arteriovenous Fistula.—One case of arteriovenous fistula of the digital arteries and one of the arteries of the palm of the hand were studied. The arteriograms in these cases had three features in common:

Fig. 5.—Arteriogram revealing an aneurysm (*A*) of the popliteal artery. A surrounding soft tissue shadow indicating thrombosis may be seen (*T*).

(1) dilatation of the arteries leading to the fistula, (2) absence of normal filling of the arteries distal to the fistula, and (3) "pooling" of the arteriographic medium in the region of the fistula (fig. 6). The detail in the areas of "pooling" could not be determined; the increased opacity to roentgen rays was irregular in degree and extent, giving the appearance of wet snowflakes adherent to a window pane. This roentgenographic appearance has not been noted in other conditions and seems characteristic of arteriovenous fistula.

COMMENT

In the last eighteen months we have performed arteriography in 100 instances. Some of the arteries were normal although arterial disease was suspected.[9] Examples of thrombo-angiitis obliterans,[10] arteriosclerosis, arteriovenous fistula,[11] popliteal aneurysm,[12] arthritis, scleroderma, Raynaud's disease and hypertension, were also studied. Our experience with the procedure in these cases leads us to believe that roentgenographic visualization of arteries in the living subject has great possibilities, since it is the only direct method of acquiring information about the function of specific arteries. The time is apparently not far off when most of the arteries of the living human being can be visualized roentgenographically, and we can only hazard a guess as to the value of such a procedure. It is well known that accuracy in diagnosis of diseases, and understanding of the physiology of the digestive, urinary and biliary tracts, received great impetus with the advent of methods for accurate roentgenographic visualization of these tracts. We doubt that arteriography will prove to be as valuable, but the procedure opens a field for study which doubtless will lead to greatly enhanced knowledge of the pathologic and physiologic processes in arteries, and in the tissues which they supply with blood. We do not feel that the procedure has been of great diagnostic value in cases of thrombo-angiitis obliterans, aneurysm and arteriovenous fistula, since careful clinical, physiologic and pathologic studies have proved satisfactory in high degree in this regard.

The chief value of arteriography, in our opinion, lies not in the direction of diagnosis but in that of pathogenesis. It gives information of inestimable value regarding the minutiae of arterial disease, information which can be secured in no other way. It is to be expected that the absence or presence of organic arterial change in Raynaud's disease, and the part played by disturbances in arterial circulation in scleroderma, can be determined. In thrombo-angiitis obliterans, the part played by collateral arteries and other adjustments to

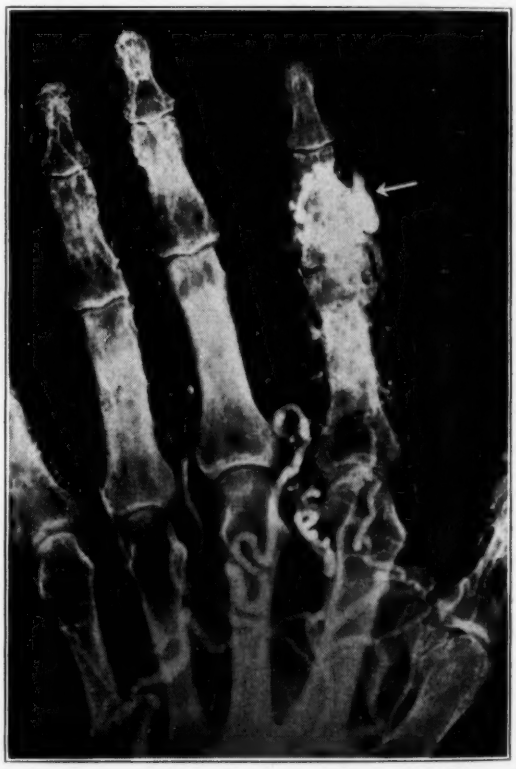

Fig. 6.—Arteriovenous fistula. The increased size and tortuosity of the arteries leading to the fistula, "pooling" of the opaque substance in the area of the fistula, and absence of filling of the arteries distal to the fistula, are well shown (previously published by Horton and Ghormley).

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10. Allen, E. V., and Camp, J. D.: Roentgenography of the Arteries of the Extremities, Proc. Staff Meet., Mayo Clin. **7**: 657-662 (Nov. 16) 1932; The Diagnostic Value of Arteriography, with Report of Two Cases, Minnesota Med. **17**: 167-170 (April) 1934; The Value of Arteriography, Radiology **22**: 678 (June) 1934.

11. Horton, B. T., and Ghormley, R. K.: Congenital Arteriovenous Fistula, Proc. Staff Meet., Mayo Clin. **8**: 773-776 (Dec. 20) 1933.

12. Barker, N. W.: Spontaneous False Aneurysm of the Popliteal Artery: Report of a Case, M. Clin. North America, to be published.

impaired circulation are portrayed in a manner that leaves little to be desired. The mode of progression of the disease, and the compensation for it, are clearly outlined. These observations appear to hold true for thrombo-arteriosclerosis obliterans, although our experience with arteriography in this condition has been distinctly limited. In addition, the situation, extent and nature of aneurysms, arteriovenous fistulas and arterial emboli can be determined accurately by arteriography. Whether or not the method will add information of value to knowledge of the pathogenesis of arthritis, hypertension and other conditions remains with the future to determine.

ABSTRACT OF DISCUSSION

DR. URBAN MAES, New Orleans: I welcome the opportunity to speak on the work that Drs. Allen and Camp have just reported. Gangrene of the extremities is always an important problem in a large public hospital, if for no other reason than that it carries a mortality, to use my own figures, of about 40 per cent. That mortality depends on two fundamental considerations, the length of time the disease has existed and the degree of arterial disease present. On that latter factor depend, in turn, two considerations: whether or not amputation is necessary, and, if it is, at what level it must be done. The higher the amputation, the more certain is one to operate beyond the limits of the disease; but against that certainty must be set a mutilation that is frequently unnecessary and a mortality that increases the nearer one approaches the trunk. Aside from the question of mutilation, no factor that increases the mortality can be lightly passed over, particularly in patients whom senility and diabetes, alone or in combination, often make very poor surgical risks. It is most important, therefore, for the surgeon to be able to determine the degree of arterial disease present; and, although many tests have been devised for that purpose, none of them have been uniformly satisfactory. With the introduction of arteriography, however, direct visualization of the arterial tree is possible, and the surgeon knows at least three things he did not know before: the size of the individual vessels, the contour of those vessels, and the existence or absence of an adequate collateral circulation. Dr. Veal in our clinic has used this method in 150 cases of vascular disease, and the results in gangrene have been very satisfactory. Again and again he has been able to tell the surgeon that he could safely amputate at a certain level, and a study of the amputated limb, as well as clinical observation of the patient after operation, has proved that he was correct. Furthermore, while it is too early to make definite pronouncements, we are very hopeful that observation over a longer period of time will prove that the reduction in the mortality of the surgery of gangrene, which we have already noted in these cases, is due at least in part to the information we have gained from arteriography as well as to other factors. I would like to emphasize the apparent safety of stabilized thorium dioxide solution. We are using it in doses very much smaller than the dosage which the experience of others has proved to be safe. A series of experiments done in our school by Dr. von Haam and Dr. Tripoli has furnished us with laboratory confirmation of its safety. Their experiments show that the drug does affect the cells of the reticulo-endothelial system but that the cells which are destroyed are promptly replaced by normal cells, which function as perfectly as do the original cells.

DR. H. E. PEARSE, Rochester, N. Y.: I don't think there is any doubt that the slides shown represent perfection in this method. Nor is there doubt of the desirability of arteriography. A discussion of the subject must center about the medium used. This involves consideration of its density, ease of administration and the harm that may result thereby. There are three types of substances available. The first is the unsaturated oils, such as iodized poppy-seed oil, which have the uniform disadvantage of possible fat embolism. The next group of compounds available are the soluble crystalline substances. It is universally true that the crystalline substances used for arteriography are in a hypertonic solution to secure sufficient density. One injects a strong hypertonic solution, which invariably causes pain. It is in this group that Dr. Warren and I have been particularly interested. We have tested many radiopaque substances of the crystalline group. We have been unable to obtain a substance that can be injected without pain. The third group is the insoluble particulate substances. These will affect the reticulo-endothelial system. I think this may be disregarded. There is ample experimental proof that one can inject particulate matter without influence on immunity. The factor of radioactivity is the one to be considered with thorium dioxide sol. It carries a negative electrical charge. It fogs a film if left for five or six days. If injected into a dog and the liver and spleen are taken out six months later, they in turn will fog a film. One may measure the radioactivity of this substance. The whole thing hinges on whether or not the amount used in arteriography is sufficient to cause delayed effects. That appears to be the salvation of the method. Thorium dioxide sol has a radium equivalent of approximately 1.25 micrograms per hundred cubic centimeters. How can one determine whether or not this will have a deleterious effect? The only comparable situation is that with the radium dial workers. A dose as low as 2 micrograms caused chronic poisoning. One introduces into the circulation a radioactive substance that will give internal irradiation over a long period of time. I think that the small amount used is the factor that makes the method safe. But this must be watched. One should not repeat the method sufficiently to raise the level of the dose up to that of the radium dial workers.

DR. IRVING WRIGHT, New York: At the Vascular Clinic of the Post-Graduate Hospital in New York we have had a limited but satisfactory experience with this method of diagnosis. Within the last several months a man, aged 65, was in the wards with diabetes, with an acute, infectious, rapidly spreading gangrene of the right first toe. The clinical experience would have indicated rather prompt amputation to save the patient's life, and the amputation would undoubtedly have been made high. Oscillometric readings showed no oscillations below the popliteal artery. There was considerable edema over the top of the foot, making it impossible to determine pulsation of the dorsalis pedis artery. We used the authors' technic and to our surprise found that the major arteries were open well down into the foot, although they were somewhat narrow in the lower part of the leg at the point where the oscillometric readings could be made. On the basis of the major arteries being open and excellent collateral circulation being established, we had the courage to refrain from amputation for some time, and within a few days there was a sharp demarcation of circulation. We took care of the situation satisfactorily and the patient lost only the first toe. A second case illustrates a warning that might be uttered against too rapid amputation. This patient was seen by Dr. Carl Green. There was occlusive arterial disease of the lower extremities. The arteriogram taken, according to the technic described here, showed apparently no opening of the major vessel below the femoral artery. The oscillometric reading was negative to that level. It was decided to repeat the arteriogram after first giving the patient spinal anesthesia, and it was found that the vessels then showed clearly down to the level of the beginning of the dorsalis pedis artery. It seemed as though in that particular patient a reflex spasm upward had deceived us as to the exact level of the organic occlusion. If we had accepted the reading of the first arteriogram the chances are that the patient would have had amputation at a much higher level than was deemed necessary. Dr. Allen and his co-workers are to be congratulated because, although other men have done this work abroad, they have been the men in this country who have interested us and inspired us to attempt this technic.

DR. E. V. ALLEN, Rochester, Minn.: I am sorry that time did not permit an adequate review of the literature on the subject. The names of Drs. Pearse and Warren are preeminent in this field, and their work has served as a model and as a stimulus. Experimental work that they have done has not been equaled so far as I know. Dr. Maes and Dr. Wright have brought out some of the clinical values of arteriography, which are extremely practical. Dr. Pearse has stressed the point that the single contraindication to the use of thorium dioxide sol is a possibility of delayed radioactivity. Safety in the use of this substance appears to lie in the amount used.

In our studies we have used only about 10 per cent of that required for roentgenologic visualization of the liver and spleen, and from the best information we can obtain it would seem that this amount is entirely harmless. I am sure that all of us would be pleased if an arteriographic medium was available about which there was no question of possible harm following its repeated injection in the same patient. It is probable that such a medium will be produced in the future. When this is accomplished, I feel certain that the study of the peripheral circulation by the intra-arterial injection of a radiopaque substance will receive a great impetus.

THE RELIEF OF MENOPAUSE SYMPTOMS BY ESTROGENIC PREPARATIONS

ELMER L. SEVRINGHAUS, M.D.
MADISON, WIS.

Therapeutic use of ovarian preparations for relief of the symptoms accompanying the menopause has met with varying and unpredictable success until within the last few years. The production of estrogenic preparations in biologically assayed form was the occasion for substantial improvement in clinical management of these patients. In 1929 the first American report of dependable treatment of the menopause with such material was published.[1] Corroborative reports have appeared by Bowman and Bender[2] in the field of psychiatry, by Hamblen[3] in gynecology and by Werner and Collier[4] in internal medicine. Experience with several standardized ovarian preparations is now so widespread among clinicians that there can no longer be the doubt of the efficacy of treatment expressed by King[5] in 1928. The usefulness of the estrogenic substance has been shown to extend not only to the commoner types of climacteric symptoms but also to the not infrequent involutional disturbances with frank psychotic manifestations[6] and to the cases that may be called pseudothyrotoxic.[7] There are likewise women in the climacteric who complain of gastro-intestinal disturbances and who benefit by this treatment. The aspects of disturbed metabolism for which the climacteric may be to blame have doubtless not been exhausted by this listing.

Among the clinical problems of importance are the duration of treatment, the dosage required, the relative value of different methods of administering the hormone, the choice of commercial preparations with least cost to the patient, and contraindications to the use of estrogenic preparations. Data bearing on these questions are secured from the study of 115 cases that I have seen, ninety-five of which have been treated. Statistical treatment of the results is not warranted by these numbers. Important clinical impressions may be secured, however, from these histories.

The results as well as the complaints are largely subjective, but clinical experience with estrogenic preparations for the menopause complaints has gone beyond the point at which their efficacy can be considered due to suggestion. Evidence of improvement is in the patient's report of relief, sometimes amplified by the observations of the family or friends as to return toward her previous mental and emotional status. In spite of this predominantly subjective nature of the material, one must deal with it, for this is what patients continually ask relief from. Essential uniformity of relief by different preparations, given by different physicians and maintained after removal from contact with the physician, is hard to reconcile with any other explanation than an organic alteration in physiologic processes. The mechanism of the action cannot be explained with certainty. It seems increasingly probable that the fundamental factor is inhibition of action of the anterior pituitary, temporarily released from normal check by the ovary, until the time arrives when a stable balance of this and other endocrine glands has been reestablished.[6]

DURATION OF TREATMENT

The natural history of disturbances due to the climacteric—spontaneous or induced—apparently can include periods of autonomic, emotional and psychic instability varying from a few days to nearly two decades. There is no known way to predict the length of this period in a given case. Hence any statement that therapy alters the duration of the symptoms must be based on large numbers of cases, statistically analyzed, which is out of the question at this time. There is no control series available, but the experience of the past six years with this material has failed to reveal any woman who required treatment lasting longer than two and one-half years. In a number of severely disturbed cases relief has been maintained following shorter periods. This encourages the belief that therapy not only reduces the symptoms but shortens the course of the disturbance. The history of a case will illustrate some of the features of this problem:

M. S., aged 24, had the removal of the last portions of ovarian tissue at the seventh laparotomy she had had for relief of appendiceal infection, adhesions, and follicular cysts of both ovaries. The menses never reappeared. Theelin was given, 50 units daily hypodermically beginning ten days after this operation, when typical climacteric symptoms were markedly in evidence. This was inadequate, but it was replaced successfully by 400 units of theelol orally each day. Another obstruction necessitated laparotomy and the therapy was interrupted for a few weeks, at which time symptoms were in abeyance. Return of the complaints led to resumption of the use of theelol, the dose of which was reduced gradually to 50 units daily. Then amniotin in oil solution was given in the same dosage with identical results. The doses were still further reduced to three and then two times weekly and stopped after nine months total therapy. Symptoms appeared again with summer weather about three months later, and the dose required to stop discomfort was 100 units of theelol or of amniotin oral. This was replaced shortly by 50 unit doses of amniotin in oil, injected hypodermically on alternate days. The dose was gradually reduced in frequency, replaced by amniotin oral and all therapy stopped twenty months after operation. There has been no significant return of menopausal complaints in the three months since, and the patient has been increasingly active during the past year.

In three other young women who have been subjected to complete oophorectomy the progress from

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5. King, J. T., and Patterson, Ellen: Observations on the Menopause: II. The Effects of Various Ovarian Preparations on Symptoms of the Menopause and on Basal Metabolism, J. A. M. A. **91**: 1423 (Nov. 10) 1928.
6. Sevringhaus, Elmer: The Use of Folliculin in Involutional States, Am. J. Obst. & Gynec. **25**: 361 (March) 1933.
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need of large doses to freedom from symptoms without therapy has required from three to ten months. It is impossible to establish a rule from four such cases. It has been evident in all these women that progressive decreases in dosage were possible without sacrificing relief from discomfort. In four other women with an artificial menopause, three produced by irradiation, a similar decrease in dosage is being carried out, with promise that less than two years of continuous therapy will be required. As compared with the few patients who have not remained under treatment but who were temporarily relieved while still in the hospital, it appears that this type of endocrine therapy is responsible for abbreviating the disturbance of the artificial menopause. A similar gradual reduction of doses and amelioration of symptoms is observed regularly in those women with a spontaneous climacteric. It would be wrong to give the impression that a definite duration of symptoms or of treatment can be stated. However, the assurance that treatment has a finite period puts this endocrine therapy on an encouraging basis as compared with that necessary for myxedema, diabetes or adrenal insufficiency; i. e., the organism can reestablish a balance after the menopause.

DOSAGE REQUIRED

In the use of follicular hormone the dose must be made adequate for the effect desired. There is no way evident in which this may be predicted for a given patient. Occasionally 10 units daily by the hypodermic route will be adequate. Far more frequently the initial week will be only partly successful unless from 25 to 50 units is given each day. Larger doses have been required at first for the control of symptoms following immediately after oophorectomy in women younger than 40. As a guide to the adequacy of the dose, it may be suggested that results are to be expected in terms of days rather than of weeks. One need not be satisfied with anything short of complete relief of all the vasomotor and emotional disturbances. The amount may as well be increased promptly to this point of complete restoration of comfort, following which reduction is to be tried gradually during the following weeks. Reappearance of hot flashes, insomnia and the like calls for an increased prescription. If no symptoms appear for some time it may be well to omit treatment for a few days to determine whether it is still needed.

There is little evidence that two daily injections are more helpful than one. If in the early stages treatment is given less than once daily, relief may not be continuous, which indicates too infrequent administration of the preparation. Later it may be possible gradually to reduce the frequency to alternate days, twice weekly, and then to omit it entirely. Some women find that symptoms may remain quiescent for some weeks, to return under excitement or exposure to heat. Relief is secured within a day or two when daily use of the material is resumed.

RELATIVE VALUES OF VARIOUS PREPARATIONS

An attempt has been made to evaluate the different commercial preparations of standardized estrogenic substance in use in the United States.[8]

In 1929 Sevringhaus and Evans[1] reported activity of the gelatin suppositories. These were as effective as the hypodermic injections if the dosage was about three times as large. This form of treatment has no longer anything to recommend it, since oral administration is possible at no greater cost.

Numerous comparisons of the results from hypodermic injection of amniotin or of theelin leave no doubt that they are interchangeable, unit for unit. Difficulty was encountered at first when the preparations were not so uniformly stable or always standardized by the usual technic. Since theelin is now standardized in the same way, it is directly comparable to amniotin.

Several women who have demonstrated their cooperativeness have been invited to try the various preparations to determine their relative value. They have not known the supposed equivalent figures but have been assisted in determining the minimum dose of each preparation that would duplicate the relief from symptoms achieved by previous materials. To avoid being misled by decreasing need for treatment it has been necessary to return occasionally to the previous form of treatment to check the need. The clinical details previously cited in the treatment of a case of artificial menopause showed the essential equivalence of theelol and amniotin oral, given by mouth. In the same case it was found that hypodermic administration of amniotin in corn oil was between four and six times as effective as the same number of units orally. A further protocol will illustrate the method of trials:

M. N. had two children, and following a few months after the second delivery, at the age of 20, a perfectly typical spontaneous menopause occurred. Symptoms had continued for seven years before she was referred for treatment. At that time she was in a moderately severe involutional psychosis, unable to care for her children. Improvement was prompt and continuous, almost dramatic to the social workers who assisted. After two and a half years of continued treatment she has gone six months without caring for any further therapy and has for two years been responsible for all her home duties.

At first she received amniotin hypodermically, 20 units daily. After a number of weeks this was changed, and she found that 90 units of progynon orally was about as satisfactory. Theelol, 100 units daily, was a little more helpful. This suggests that the oral dose needs to be between four and five times the hypodermic dose. Next an attempt was made to stimulate her ovaries with antuitrin-S and with follutein (commercial preparations of the anterior pituitary-like gonadotropic stimulating substance from the urine of pregnancy), but no flow and little subjective benefit resulted.

Next a comparison of theelol and amniotin oral was made. At this stage she found that 400 units of theelol gave excellent results but that 200 was inadequate. She thought that 200 units of amniotin was inferior to the same dose of theelol, but at 300 units the judgment was reversed. Improvement began to be manifest, and the dose was reduced to 100 units. Comparisons of theelol and amniotin at this level and at 150 units were in favor of the theelol, but the advantage was found to be the tastelessness of the theelol tablet or capsule as compared with the unpleasant odor of amniotin, which she could not easily disguise.

For some reason her requirement seemed to rise, and control was secured by from 200 to 300 units of amniotin oral. She then changed to the use of amniotin in oil given hypodermically. She was trained to give the injections herself. With this material she found that 50 units daily gave as much relief as 300 units of amniotin oral. This 6 to 1 ratio is probably significant of a slight advantage of the oil solution as compared with the aqueous hypodermics in the same patient earlier. After four months she began to reduce the frequency of doses and by the end of thirty months of total treatment she was able to stop all use of ovarian hormone.

8. Squibb's amniotin has been used in aqueous solution hypodermically, in hardened gelatin vaginal suppositories, in oil solution orally, and in oil solution hypodermically. Parke, Davis & Co.'s theelin has been given in aqueous hypodermic solution and in vaginal suppositories, and theelol has been given in tablets and capsules orally. Progynon, produced in Germany by Kahlbaum and imported by the Schering Corporation, has been used only in the tablets orally. For much of this material I am indebted to Dr. J. F. Anderson of E. R. Squibb and Sons and to Dr. E. A. Sharp of Parke, Davis & Co. A preliminary supply of progynon was also furnished by the Schering Corporation.

Similar trials with other women have shown an advantage sometimes for one preparation, sometimes for another. It was evident at times that the disagreeable taste of amniotin oral was a handicap to the comparison. Some women disguised this readily in food and at times reported it as superior to theelol. In general, the impression is gained that there is no dependable difference in therapeutic efficiency between the same number of units of amniotin oral, of theelol and of progynon. Also the oral dose of these materials appears to be about five times as large as for the hypodermic administration. These impressions are gained from the treatment of ninety-five women, seven different preparations being used with an average of two preparations per patient.

The use of the oil solutions hypodermically is of interest. The only one tried was amniotin, prepared in a refined corn oil. This caused no local pain and was apparently well absorbed even when used for a period of months in the case just cited. Two women who used it had an impression that it gave a more sustained effect throughout the day than they noted from single doses of aqueous hypodermic material. This is hardly sufficient evidence to be dependable; the difference is certainly slight. In one woman who used this material a severe local reaction developed at the site of injection, and hay fever and asthma appeared simultaneously during the corn pollen season. She was then found to be allergic to corn pollen and knew that exposure to corn at certain times caused hay fever and asthma. A sample of the corn oil supplied by Dr. Anderson failed to give typical skin reactions, but there was an immediate and very transient reaction to the amniotin in skin testing. The entire episode was atypical in that local reaction to the oil injections did not appear until after several weeks of its use. In general the use of the oil solution has no obvious advantage, although it has less risk than is usually assumed.

COST TO THE PATIENT

It will be apparent that oral therapy is so dependable that it should be the method of choice. About five times as much needs to be given as by hypodermic injection. But in the case of amniotin the oral preparation is priced so that there is no differential to interfere with the oral use. Unfortunately, theelol costs at least 50 per cent more than the equivalent dose of theelin. There is only a little difference between the cost of the theelin and amniotin used hypodermically. But in the case of progynon the tablets cost much less than the equivalent dose of any other preparation. It is greatly regretted that the American products have not been available at prices that justify their preference or at least their being on a parity with the imported material.[9] At the most recent quotations it would seem the duty of the clinician to protect the interest of his patients by prescribing the least expensive preparation. Cost of treatment is practically the only reason assigned by patients who have stopped treatment while symptoms persisted. Since there is no advantage to the use of hypodermic materials, the cost of professional service for their administration or the trouble of teaching the patient the technic should operate to secure the early and entire replacement of this method of medication by oral therapy.

9. Since this manuscript was prepared, I have learned that the American products will be markedly reduced in retail cost shortly. Purchase may therefore well be made on a basis of cost per unit and type of medication desired.

CONTRAINDICATIONS

There are two situations that call for a reduction in dosage. One is the occurrence of a vaginal bloody flow. In several cases this has occurred during the therapy, as reported by Werner and Collier.[4] There is no serious harm, but it is wise to reduce the dose. Control of symptoms has been achieved with doses less than enough to cause a repetition of bleeding. The other circumstance is the stimulation of libido to an uncomfortable degree. There is no doubt that the estrogenic principle is not only estrogenic in animals but also the important biologic factor arousing libido in women. One woman, aged 30, who had suffered oophorectomy at 21 and hysterectomy at 25, was doing very well while using 50 units of amniotin in oil hypodermically. During a trip she became conscious of an unpleasant increase of general sex interest and libido. Suspecting the medication as a possible cause, she reduced the dose sharply, with much relief.

In addition (although this may appear paradoxical at first glance) it is probable that primary amenorrhea or any condition in which it is desired to reestablish absent menses should be a contraindication to the use of this hormone. The use of large doses of estrogenic substance is known to cause inhibition of the anterior pituitary factor normally responsible for stimulating gonadal development and activity. Therefore, although estrogenic preparations given in large doses may substitute for the ovary in stimulating a uterine development sufficient to be followed by a flow, this result is only temporary, and the ovaries themselves are left less active than before therapy. The commercial producers advocate the use of the material for these cases. There is reason, based on the results obtained in lower animals, to consider this entirely erroneous. Such cases really require stimulation of ovarian function through pituitary medication.

SUMMARY

Observations made in following the course of treatment of ninety-five women suffering from menopausal disturbances indicate that the sustained use of adequate amounts of estrogenic substance tends to shorten the course of the disturbance. In no case has therapy been needed longer than thirty months. The daily dose required varies and must be determined by trial. The criterion suggested is the minimum that secures complete relief from the autonomic and emotional disturbances. There is no clinically significant difference between the same number of units of the different preparations—amniotin, theelin and progynon—when they are administered by the same route. Oral therapy is so dependable that it may well replace hypodermic administration. The choice of preparation used may be made on a basis of cost, provided any one of the biologically standardized preparations is employed. Contraindications to the use of estrogenic preparations include reestablishment of menstrual flow after the menopause, undue increase of libido (both of these calling for reduced doses) and amenorrhea in cases in which it is desirable to restore menstrual function.

ABSTRACT OF DISCUSSION

DR. EMIL NOVAK, Baltimore: Many women pass through the menopause with scarcely any symptoms, so that they need no treatment. In a large number the symptoms are rather mild, so that no treatment is necessary except an instructional and reassuring talk from the medical adviser as to the normality of the symptoms, their temporary nature, the importance of avoiding stress and anxiety, and perhaps the administration of

some such simple nerve sedative as the bromides. In a minority of cases, however, the characteristic symptoms, and especially the vasomotor flushes and sweats, are so pronounced and disturbing that efforts at organotherapy are called for, and I know of no rational plan other than the employment of the only potent ovarian hormone available. I refer, of course, to the follicle hormone, usually in the form of theelin, amniotin or progynon. Why is this plan rational? That the menopause is produced by the withdrawal of the ovarian secretions is universally accepted. That the ovarian hormone responsible is estrogenic substance is indicated by considerable evidence. For example, hormone studies, especially by Zondek, have shown that the woman passing through the menopause goes first through a phase of excessive production of estrogenic substance, then through one of deficiency in estrogenic substance, and finally through one of excessive production of the gonadotropic factor. In the first of these, menstrual excess is common, but, in my experience, women with such functional bleeding rarely suffer with vasomotor symptoms. It is in the stage of deficiency in estrogenic substance that vasomotor phenomena are most common. Although little is known of the mechanism of their production, it seems probable that the most characteristic symptoms, the flushes of the head, neck and upper part of the thorax, must be in some way evoked through association between the endocrine organs and the nerve centers, probably in the hypophyseal region. That withdrawal of estrogenic substance is the immediate cause of menopausal symptoms is further indicated by the fact that the removal of certain tumors that produce it in large amounts, and, so far as is known, only estrogenic substance, may produce characteristic menopausal symptoms, even in elderly women. In other words, women who have passed through one menopause at the usual age may experience a second many years later. I have recently reported such a case, and others have been observed by Schulze and Dworzak. For such reasons as these I look on substitutional estrogenic hormone therapy as rational. I am in essential agreement with Dr. Sevringhaus as to the matter of dosage. As to the route of administration, for the present I prefer the hypodermic method in most cases, although it seems possible that a lowering of the expensiveness of commercial preparations will make the oral method the popular one in the future. I have not been able to understand why the commercial preparations of the estrogenic hormone are so expensive in this country and so cheap in Germany.

DR. J. P. PRATT, Detroit: The author has presented logically the treatment of an important group of clinical cases. It remains to be seen whether he is dealing entirely with a cause and effect relationship or has underestimated his psychotherapeutic results. Nearly ten years ago, just after Allen and Doisy standardized the estrogenic hormone and purified it to such an extent that it could be used for injection into human beings, I was impressed with the analogy between the human castrate and the animal castrate. The logical deduction was that an estrogenic substance that would completely substitute for the function of ablated ovaries in animals would do the same in man, the typical human castrate being, of course, one in whom the ovaries were removed at operation or a woman at the menopause. At that time a number of patients were injected with a preparation furnished by Allen and Doisy. Only a few units of a hormone were used but in the first twenty-five cases treated the results seemed satisfactory. Then it was realized that the human experiments were not analogous to the animal experiments, for the estrous cycle and the menstrual cycle are quite different and in the human being no controls were being used. When other inert injections were used, such as salt solution or sterile water, equally good results were obtained. In other words, the first effect must have been largely psychotherapeutic and to a very little extent a relation of cause and effect. This has led me to question similar results without adequate controls. It would seem that in presenting a problem of this sort a series of controls should be maintained and a group of ninety-five patients should be sufficient to provide ample controls. The author's attempt to increase knowledge of human endocrinology is highly commendable. The brilliant laboratory achievements resulting from carefully planned and controlled experiments are most stimulating. The clinician's task is difficult. He deals with few normals but has a wealth of material illustrating aberrations of function. Information can be obtained only in fragments and pieced together as well as possible. Conservatism is necessary, that clinical endocrinology may be established on a sound basis.

DR. E. P. MCCULLAGH, Cleveland: There seems little doubt that menopausal symptoms are largely a matter of disturbed body chemistry. The symptoms appear regularly, not only at the time of the natural menopause but after irradiation of the ovaries and after oophorectomy. In addition, the symptoms are accompanied frequently by certain anatomic changes such as weight gain, with distribution of fat especially over the trochanters, and a tendency to hirsutism. There are still other changes, such as a lowering of the basal metabolic rate, and bioassays show that there is definite disturbance in the levels of the various hormones. The mechanism of the production of menopausal symptoms must still remain in doubt. In certain individuals, at least during a part of the menopausal cycle, there is an excess of estrogenic substance in the blood and urine. In others there is a rather marked excess of the gonad stimulating factor in the blood and urine. For this reason I was inclined previously to look on the menopausal symptoms as caused by an increase in gonadotropic substance rather than due directly to deficiency of estrogenic substance. This, however, I have not been able to show in all instances, which may be due partially to inadequate methods of assay. The mechanism of the climacteric may be better understood after methods of assay have reached a higher point of accuracy. It seems probable that the pituitary gland plays a large part in the production of menopausal symptoms and that it is likely that other pituitary hormones in addition to the sex factors are markedly disturbed. The frequency of occurrence of hirsutism, of hyperthyroidism, and of diabetes mellitus at this age lends support to this belief. In the relief of menopausal symptoms, the treatment is chiefly a matter of dosage, and there seems to be no advantage in giving doses oftener than once a day or in some instances once every second day. I have not been able to determine that relief is obtained more quickly by more frequent administration, provided the dose is adequate. I believe the relief will be attained in a matter of days rather than weeks. There are still a number of cases in which therapy with estrogenic substance does not produce adequate improvement. This still may be a matter of dosage, but in my experience, even with doses that are adequate in relatively severe cases, some patients fail to respond. It is difficult to judge from the patient's symptoms the relative value of estrogenic substance in any form after one course of treatment. Some patients with relatively severe menopausal symptoms, after treatment for a few days or weeks, can be completely rid of symptoms for months or the symptoms may not return at all.

DR. J. I. HOFBAUER, Cincinnati: The menopause is characterized by a definite increase in the number of the basophils in the prehypophysis. In 1922 the treatment of menopausal symptoms by irradiation of the hypophysis was introduced. I am still inclined to consider this method the best, as far as the results obtained are concerned. My views are shared by the reports of a good many clinicians J. A. Huet, *Bull. et mém. Soc. de radiol. méd. de France,* July 1933; the Mayo Clinic; Sahler et al. No harm is done to the brain by this type of irradiation. Following the irradiation of the hypophysis in cases that showed definite signs and symptoms of hyperthyroidism, these symptoms disappeared, and the thyroid showed a marked decrease in size (*Arch. f. Gynäk.* **120**). Recently, I treated menopausal symptoms with insulin in several cases, with somewhat gratifying results. I am anxious to learn whether there has been any study made concerning the absorption of ovarian hormones from the intestinal canal, since my observations have shown that anterior pituitary preparations are quantitatively destroyed by pancreatic juice.

DR. ELMER L. SEVRINGHAUS, Madison, Wis.: I have no data on absorption of estrogenic substance taken orally, but the material is effective orally in doses five or six times as great as those given hypodermically. This ratio may indicate poor absorption or partial destruction. Several diabetic women failed to get relief from menopausal symptoms by the use of diet and insulin alone. The addition of estrogenic material accomplished clinical relief. It appears that insulin is useful only for the control of the diabetes. Although on theoretical grounds

irradiation of the pituitary should give relief from menopausal symptoms, I do not favor its use because it is as yet impossible to control the dosage so that other structures and functions are not also endangered. The replacement therapy is more physiologic and less precarious. The resistant cases in my experience have been the younger women with artificial menopause. The requisite doses are very high, sometimes as high as 400 units daily by hypodermic injection for a few days until control is established. After that the requirement rapidly declines. So far I have not seen any patient in whom I was unable to secure fairly satisfying relief. This tendency to improvement under therapy makes it necessary, when comparing two preparations, to return to the original one at times to find whether the need has decreased. This has been done in my series when there was any evidence suggesting that one preparation was more successful than another. The matter of control observations has been dealt with in previous papers. Experience has also been had with the same clinical group with unstandardized ovarian materials in previous years, when results were sometimes secured but the therapy was not dependable. Trials of bromides and barbiturates to reduce costs have also served as a control on the effectiveness of the therapy. Psychotherapy is admittedly helpful in making an approach to these women, but it is far from a complete therapy. Principally it can reassure by emphasizing the temporary nature of the climacteric. The cost of treatment could not be a disturbing factor in the results I have reported because the materials were furnished for most of these patients free of cost. I maintain that, for extended therapeutic procedures like this, the lowest cost to the patient is the optimum for the physician. More patients will come under treatment because increased availability will make for wider benefits and hence larger demands. Eventually retail costs are further brought down by quantity use. It is fortunate that the American manufacturers are viewing the matter in this light and already reducing prices.

USE OF THE ELECTROSTETHOGRAPH FOR RECORDING HEART SOUNDS

PRELIMINARY REPORT

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Our purpose in this report is to record the use of a new device for photographing heart sounds. The electrostethograph,[1] designed by M. L. Lockhart, appears to have certain advantages over other types of apparatus used for this purpose. A brief presentation of the historical background in the development of this field of investigation may be of interest.

According to Hirschfelder,[2] the first method for recording heart sounds was introduced by Donders in 1856 and was revised by Martius in 1888. It consisted of beating the time of the sounds on a receiving tambour and recording the movements of the lever.

Hürthle in 1893, Einthoven and Geluk in 1894 and Holowinski in 1896 were the first to employ methods in which the sounds were received by means of a microphone.[3] Hürthle received the sounds by a stethoscope connected with a resonance apparatus, which magnified the amplitude of the vibrations; the enlarged vibrations acted on the handle of a wooden tuning fork, the latter being set into vibration in the same tempo. The vibrations of the arms of the fork excited the microphone, which set in action an electromagnetic signal apparatus, the movements of which were transferred to a pantograph of Marey and registered. Einthoven and Geluk picked up the sounds with the stethoscope and conducted them through a rubber tubing to a microphone. The currents were then led through a capillary electrometer the movements of which were photographed.

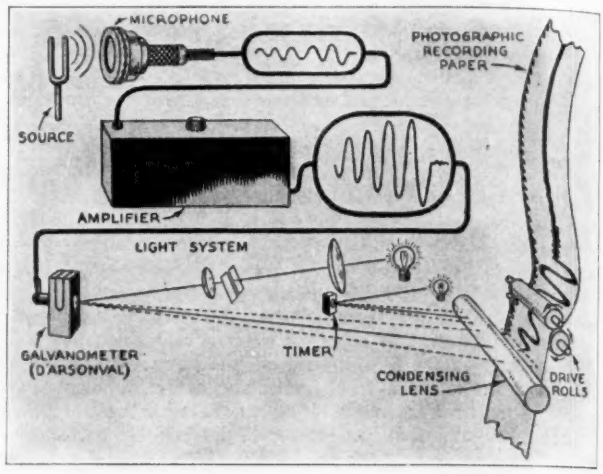

Fig. 1.—Schematic diagram of the electrostethograph.

Holowinski also used a microphone as a receiver of the heart sounds but recorded them with the aid of a so-called optical telephone. The method depended on an application of the interference rings of Newton, the changes in the rings being then photographed.

Marbe in 1907 and Roos in 1908 used an entirely different objective method for recording the heart sounds. They transferred the oscillations of a tambour activated by the heart sounds to a gas flame of great sensibility. They applied the tambour over the chest and then passed a paper through the sooty flame, recording the sounds on this paper. Weiss and Frank devised instruments in which no microphone was used but in which the vibrations of a membrane set in motion by the heart sounds are magnified and recorded photographically. Otto Weiss first reported his work with this apparatus in 1907, and in 1908 Weiss and Hofbauer reported photographing fetal heart sounds.

An important step in the photography of heart sounds was developed in 1903 by Einthoven, who at that time introduced the string galvanometer.[4] Einthoven's work resulted in an apparatus of extreme sensitivity, and easily applicable to clinical and physiologic research.[3] Since the introduction of the string galvanometer in place of the capillary electrometer, Einthoven's method has passed into everyday use and excellent records of normal and abnormal heart sounds have been obtained. Using this method, Einthoven, Eyster, Kahn, Lewis, Bull, Fahr and others have contributed many accurate studies of the time of onset, duration and crescendo or decrescendo character of the normal and pathologic heart sounds and murmurs and have described variations with rate, respiration, posture and exercise.

In 1910 S. G. Brown introduced a telephonic stethoscope that amplified the heart sounds about sixty times. It depended on passing the sound currents through a telephonic relay, thereby increasing their strength.

Submitted for publication, Aug. 31, 1934.

1. Arrangements have been made with the Cambridge Instrument Company, New York, for the manufacture of the electrostethograph.

2. Hirschfelder, A. D.: Diseases of the Heart and Aorta, Philadelphia, J. B. Lippincott Company, 1918, p. 150.

3. Barker, L. F.: Electrocardiography and Phonocardiography, Bull. Johns Hopkins Hosp. **21**: 358 (Dec.) 1910.

4. Bierring, W. L.: Historical Developments in Diagnosis of Heart Disease, Illinois M. J. **66**: 115 (Aug.) 1934.

"Long distance" auscultation was then introduced and graphaphonic records were made that could be reproduced.

In 1920 Dr. H. B. Williams of New York [5] used an electromagnetic transmitter and two stages of electrical amplification to record a cardiac murmur. Gen. George O. Squier of the U. S. Signal Corps at the same time amplified the heart sounds and reproduced them with a magnavox loud speaker for demonstration to assemblies and for long distance transmission. In an article published in 1922, M. J. Myres [5] called attention to the use of the newly developed vacuum tube as a means of magnifying the electric waves of a telephone circuit and stated that in his opinion it was the beginning of a "microscope" for the ear.

In June 1923 Richard C. Cabot [6] reported the use of the electrical amplifying stethoscope, the result of three years of experimental work. The instrument was designed by the New York engineering department of the Western Electric Company and consisted of an

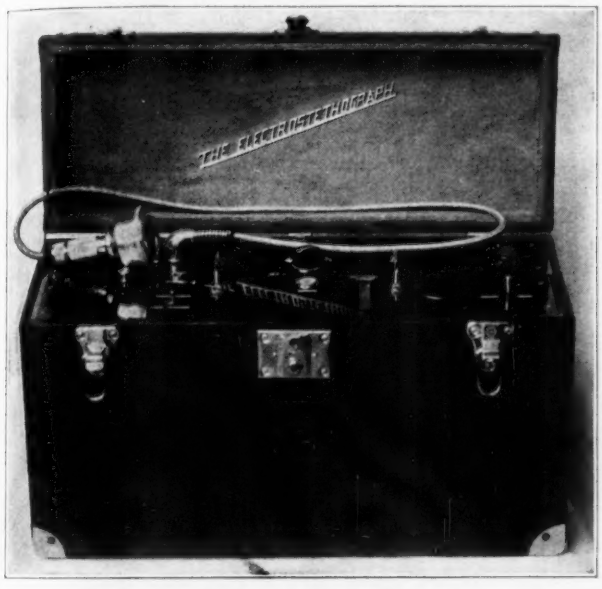

Fig. 2.—Complete electrostethograph unit.

electromagnetic transmitter to pick up the sound; the current was then passed through three amplifying vacuum tubes, the last of which was the power or output tube. The current was then distributed to the receiving sets. The details of this device were published in 1924 by Gamble and Replogle.[7] Later these workers used the electric filter [8] to attain selectivity in the frequency of the vibrations introduced into the amplifying circuit. In February 1923 Jacobsohn [9] of Germany reported using a similar amplifying stethoscope. More recently A. Graham Asher [10] of Kansas City has used the argon tube to record heart sounds. With this method the sounds are picked up by a microphone and after amplification the current is passed through the argon tube, causing the glow of the tube to vary according to the current introduced. These variations in the intensity of the light are then recorded on photographic paper.

Valuable contributions on the subject of heart sound records and their interpretation have been made by Gerhartz, Battoerd, Joachim, Selenin, Hoogerwerf, Abbott, Duchosal, Wiggers and Paul D. White. A

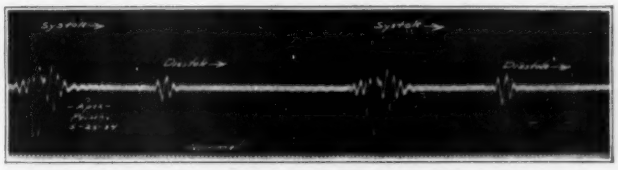

Fig. 3.—Normal heart sounds: Tracing on a man, aged 32; no organic heart disease; no audible abnormal sounds.

Fig. 4.—Mitral regurgitation in a man, aged 30; diagnosis: rheumatic heart disease, mitral regurgitation.

number of these men as well as more recent workers have made simultaneous heart sound records and electrocardiographic records and have pointed out the advantages of taking the two records at the same time.

The electrostethograph was designed and built by M. L. Lockhart; it is illustrated in the accompanying schematic diagram (fig. 1). This diagram shows sound waves being picked up by a microphone and amplified to the desired magnitude by a vacuum tube amplifier. These amplified sound waves, which have been changed to pulsations of electrical energy, are then fed into the moving coil of a d'Arsonval type of galvanometer. This coil, of course, follows each electrical pulsation trans-

Fig. 5.—Systolic gallop rhythm in a man, aged 43. *G* is the extra sound. Diagnosis: no organic heart disease.

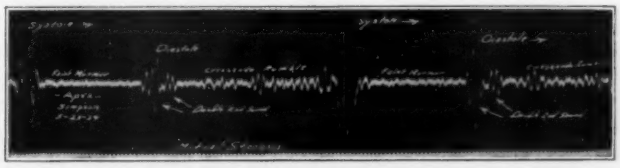

Fig. 6.—Mitral stenosis in a woman, aged 53. Diagnosis: rheumatic heart disease, mitral stenosis, partial decompensation.

mitted into it. A tiny concave mirror attached to the moving coil in the galvanometer reflects light onto a moving photographic paper or film. Part of this reflected light is thrown on a ground glass screen, which enables the operator to observe the sound vibrations that are being photographed. Provision is made also to enable one to hear the sounds simultaneously as they are seen and photographed. A loud speaker may be used for group demonstration or classroom instruction.

5. Myres, M. J.: The Clinical Application of the Audion Amplifier, J. A. M. A. **78**: 100 (Jan. 14) 1922.
6. Cabot, R. C.: A Multiple Electrical Stethoscope for Teaching Purposes, J. A. M. A. **81**: 298 (July 28) 1923.
7. Gamble, C. J., and Replogle, D. E.: A Multiple Electrical Stethoscope for Teaching Purposes, J. A. M. A. **82**: 387 (Feb. 2) 1924.
8. Cabot, R. C., and Dodge, H. F.: Frequency Characteristics of Heart and Lung Sounds, J. A. M. A. **84**: 1793 (June 13) 1925.
9. Jacobsohn, Leo: Amplified Audibility of Heart Sounds, J. A. M. A. **80**: 493 (Feb. 17) 1923.
10. Asher, A. G.: Graphic Registration of Heart Sounds by the Argon Glow Tube, Arch. Int. Med. **50**: 913 (Dec.) 1932.

The electrostethograph is operated entirely from the ordinary 110 volt current. It weighs 33 pounds complete and measures 18 inches in length, 7 inches in width and 9 inches in height. It is, of course, portable.

Owing to the use of a new type galvanometer in a unique circuit design, the necessity for calibration, standardization and focusing has been eliminated. The machine is simpler to operate than a modern radio set. The procedure is as follows: After the machine has been connected to an electric plug, the microphone is placed on the chest over the heart and the volume increased to the desired magnitude by the turning of a dial. To take the picture the operator has only to press a button, thereby starting the electric motor, which drives the film or photographic paper past the beam of light and into a light proof container. The technic required in placing and holding the microphone is the same as that required in the proper use of the stethoscope. The viewing screen is 60 mm. in width, the same as the film; this makes it possible to determine accurately the dimensions of the finished picture. Murmurs and other irregularities can be seen as well as heard and the volume increased to bring them out with the desired magnitude on the picture. The value of this viewing screen cannot be fully appreciated until one uses it.

In the clinical use of the electrostethograph we have been impressed with the accurate reproduction of both normal and abnormal sounds audible to the ear. In making tracings it was advisable to suspend respiration during the time a record was being taken. This precaution was quite essential to take a satisfactory record

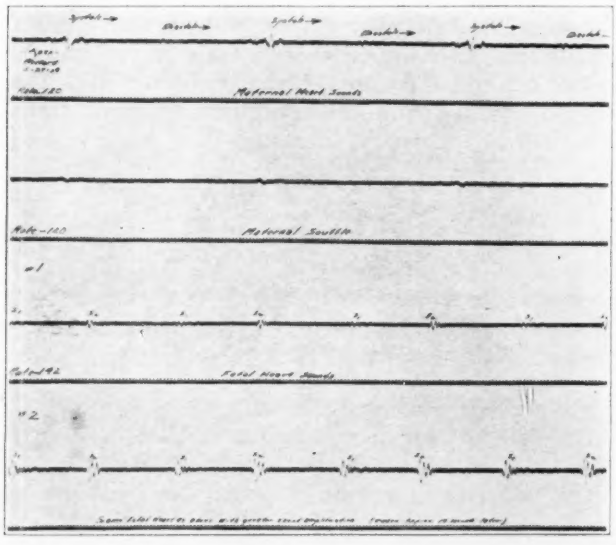

Fig. 7.—Maternal heart sounds, maternal souffle and fetal heart tones in a woman, aged 38. Diagnosis: pregnancy, eight months.

over the base of the heart. The degree of pressure with which the microphone face was applied to the chest wall was an important consideration. The lightest pressure with which it was possible to maintain adequate contact with the skin and keep out extraneous sounds was most desirable for obtaining good records. Relatively quiet surroundings were also desirable, but absolute quiet was not essential. Accurate application of the microphone to the area in which the sounds were best heard was also of importance. Low amplification improved the quality of the tracing, since the interval between the heart sounds would be maintained free from oscillations. With high amplification, some oscillations of the base line were unavoidable. Intestinal borborygmus caused a rather marked disturbance in tracings taken over the lower part of the chest. In some records, definite oscillations were present for which we were unable to offer an adequate explanation.

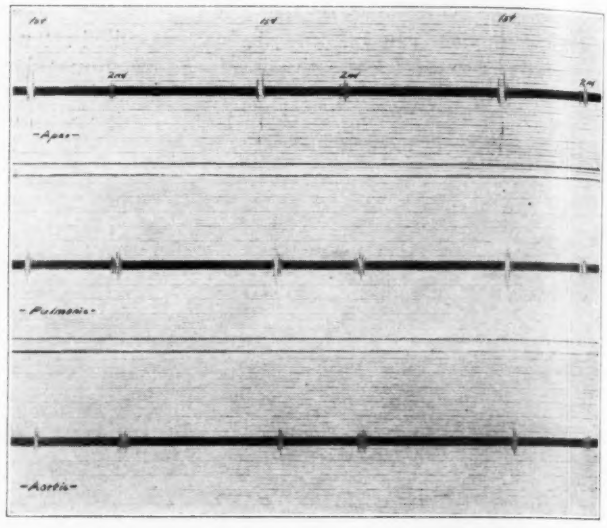

Fig. 8.—Record with improved apparatus showing normal heart sounds.

Murmurs audible to the ear were adequately photographed on our record. The murmur of mitral regurgitation was often relatively high pitched and did not make as prominent an excursion on the tracings as the intensity of the sound to the ear would lead one to anticipate. Thomas Lewis [11] as well as others have previously made this observation. In some cases with mitral regurgitant murmurs a short presystolic oscillation of the base line was present when no distinct sound was audible to the ear. On the tracing it was easy to decide whether a murmur was systolic or diastolic in time even with increased heart rates. The oscillations in mitral and aortic stenosis were large and relatively widely separated, while those in the regurgitant murmurs were more likely to be small in amplitude and less widely separated.

In photographing the heart sounds, both normal and abnormal, the visible impulse on the screen was exceedingly valuable in helping the operator apply the microphone in the optimum location and with the proper degree of pressure to bring out the sounds to the best advantage. It was also of distinct aid to the ear in recognizing adventitious sounds, particularly those of short duration. The deflection produced by the sound might be perceived on the screen before it was heard by the ear. The relative length of time occupied by systole and diastole was usually appreciably different to the eye, so that by watching the impulse one might see that a murmur was definitely systolic or diastolic in time. Audible splitting or reduplication of the first or second sounds always appeared distinctly in the photographic record. In gallop rhythm the extra sound was always visible on the photographic record and its location in the cardiac cycle was evident. In one case

11. Lewis, Thomas: Illustrations of Heart Sound Records, Quarterly J. Med. **6**: 441, 1912-1913.

a pericardial friction rub was photographed. Fetal heart tones and the maternal souffle were satisfactorily photographed in a number of instances. In one case in which there was a tachycardia and a heart rate of 240 beats per minute, a satisfactory tracing was taken showing the first and second sounds about 1 cm. apart.

Figures 2 to 7 are illustrations of some of the sound tracings taken with the electrostethograph. Figures 8

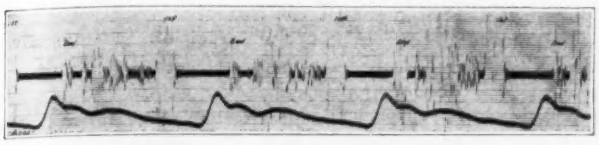

Fig. 9.—Record with improved apparatus showing mitral stenosis.

to 10 were taken with an improved apparatus developed by Mr. Lockhart and the Cambridge Instrument Company in accordance with suggestions of Dr. H. B. Williams.[12]

The electrostethograph offers a satisfactory method of photographing heart sounds and appears to have certain advantages over the other types of recording devices. It can be operated wherever 110 volt alternating current is available. It is a small, compact unit that is entirely portable. Its operation is very simple, inexpensive and requires no unusual skill. The use of the viewing screen, on which the vibrations can be seen at the same time one is listening to and photographing the sounds, aids greatly in obtaining the best photographic records. Careful observation of the screen is also of aid in detecting certain abnormal

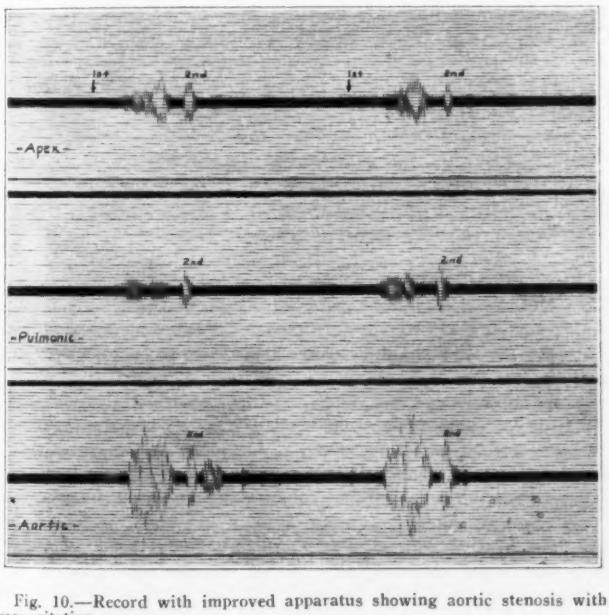

Fig. 10.—Record with improved apparatus showing aortic stenosis with regurgitation.

sounds and locating their position in the cardiac cycle; this feature should be of particular aid in training the student. The photographic record of heart sounds is of distinct aid as a supplement to auscultatory observations as well as providing a permanent graphic record. In our experience with the electrostethograph there have been some oscillations of the base line for which we were unable to account; further study will be required to determine their significance.

12. Department of Physiology, Columbia University.

ARTHRITIS

A COMPARISON OF THE CYSTINE CONTENT OF THE FINGERNAILS WITH THE SEDIMENTATION REACTION OF THE BLOOD

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Sullivan and Hess,[1] using the Sullivan [2] cystine reaction, demonstrated that the cystine content of the fingernails in arthritis is, on the average, below normal and in many cases exceedingly low. This lowered cystine content of the fingernails was concluded to be an index of a toxic factor. Fischer [3] and Westergren [4] stated that the sedimentation reaction of the blood varies directly with the degree of intensity of the arthritic

TABLE 1.—*Results in the Eight Control Cases*

Case	Cystine of the Fingernails	Sedimentation Reaction
A. J. W.	11.31	2
J. W. S.	11.90	3
J. M. H.	12.86	2
A. P. N.	10.38	3
A. M. H.	11.46	11
J. G. L.	13.02	2
W. C. H.	12.88	7
M. X. S.	12.05	8

TABLE 2.—*Results in Twenty-Two Cases of Arthritis*

Case	Cystine Content of the Fingernails	Sedimentation Reaction
R. Y.	11.15	8
I. W.	9.79	15
G. S.	12.20	8
J. B.	9.54	9
C. T.	11.80	14
E. H.	10.52	8
J. W.	10.10	26
J. R.	8.64	32
S. S.	11.50	18
A. H.	9.75	34
A. G.	7.84	38
N. F.	9.35	55
B. C.	8.10	30
S. G.	9.87	29
N. R.	9.61	26
E. R.	7.41	30
T. H.	9.29	20
E. L.	9.02	16
U. H.	8.15	17
M. A.	7.95	27
J. H.	9.20	29
P. W.	11.90	10

process. Therefore an effort was made to compare the results of these two reactions in twenty-two unselected cases of this disease.

The cystine content of the fingernails was determined, in each instance, by Sullivan [2] and the results are expressed in the percentage of cystine in the total amount of nail clippings examined. The Cutler [5] method was adopted for the estimation of the sedimentation reaction. The results of this procedure are expressed in millimeter readings, made at the end of one hour, as it has been proved by Fischer [3] that additional readings offer no greater value.

Eight normal individuals were selected as controls, and the results of the examinations in each instance are recorded in table 1.

1. Sullivan, M. X., and Hess, W. C.: The Cystine Content of the Fingernails in Arthritis, J. Bone & Joint Surg. **16**: 185-188 (Jan.) 1934.
2. Sullivan, M. X.: Studies in the Biochemistry of Sulphur: IV. The Colorimetric Estimation of Cystine in Casein by Means of the Beta Naphthoquinone Reaction, Pub. Health Rep., 1929, supplement 78.
3. Fischer, A.: Blutbefunde bei rheumatischen Erkrankungen, Rheuma Problem 1, Leipzig, G. Thieme, 1928.
4. Westergren, A.: The Red Cell Sedimentation Reaction in Some Acute Infectious Conditions and in Diseases of the Joints, Internat. Clin. **1**: 70-77 (March) 1928.
5. Cutler, J. W.: The Practical Application of the Blood Sedimentation Test in General Medicine, Am. J. M. Sc. **183**: 643-657 (May) 1932.

The presence of pain, limitation of motion or tenderness in the joints, associated with ankylosis, swelling or muscular rigidity or characteristic roentgen changes or a combination of these symptoms and signs was considered sufficient to make a diagnosis of arthritis. No cases were included which could possibly be tuberculous or syphilitic in nature, but no attempt was made to differentiate the cases selected into a more specific group than that of chronic nontuberculous arthritis.[6] It is true that some of the cases could have been classified as rheumatoid, others as hypertrophic, atrophic or mixed types, but for the purpose intended this differentiation seemed to be unnecessary.

Table 2 is a record of the results of the examinations in each of the cases of arthritis.

Table 3 shows a comparison between the high, low and average readings of each reaction.

TABLE 3.—*Comparison Between Various Readings*

	Low		High		Average	
	Normal	Arthritic	Normal	Arthritic	Normal	Arthritic
Cystine.....	10.38	7.41	13.02	12.20	11.98	9.66
Sedimentation.....	2	8	11	55	7.75	22.68

TABLE 4.—*Comparison by Decades*

Distribution of Sedimentation Reaction	Average Percentage of the Cystine Content of the Fingernails	Number of Cases
0-10	10.85	4
10-20	10.36	6
20-30	9.33	6
30-55	8.51	6

It is evident from these tabulations that in only one instance was the cystine content of the fingernails above the average normal, but in this case the sedimentation reaction was close to the average normal. In this one instance (G. S.) the disease process had been arrested and the patient was suffering from residuals of a previously active process. In no instance was the sedimentation reaction below that of the average normal sedimentation reaction.

Further analysis reveals that when the results of the sedimentation reaction of each case are grouped into decades and the average readings of the cystine content of the fingernails of each group are compared with that of the other groups, these readings vary, in general, in inverse proportion to the sedimentation reaction of the blood. Table 4 demonstrates this fact.

COMMENT

Although the number of cases studied is small, the results are so definite that it seems logical to conclude that, at least on the average, an inverse ratio between the cystine content of the fingernails and the sedimentation reaction of the blood does exist in arthritis. This is not true, however, in every instance, when the individual case is considered. These aberrations from the foregoing conclusions might be explained by the fact that the duration of the disease varied in each instance and the changes in the fingernails would not take place as rapidly as the changes in the sedimentation reaction of the blood. Therefore in the early stages of the disease or during a recurrent attack a normal cystine content of the fingernails with a high sedimentation reaction might be expected. Such variations, however, do not seem to influence the end result when the averages are considered.

6. Fischer, A. G. T.: Chronic Nontuberculous Arthritis, New York, Macmillan Company, 1929.

The explanation of this phenomenon is problematic. Sullivan and Hess [1] believe that the decrease in the cystine content of the fingernails "implies an intoxication factor which draws on the sulphur complexes; as for example, glutathione, and thus diverts sulphur from its normal channels." It has also been suggested [7] that an increase in the sedimentation reaction of the blood is also associated with an intoxication factor. If these theories are true, the results would indicate a toxic etiology in all the cases of arthritis that were studied. Furthermore, the fact that the variation is inversely proportional would suggest that this variation is indicative of the degree of toxicity.

Sullivan and Hess [1] also stated that this low cystine content of the fingernails in arthritis suggests a method of therapy with sulphur. Because of the inverse proportionate variation between the cystine content of the fingernails and the sedimentation reaction in arthritis, it seems logical to conclude that an increase in the latter would presuppose a decrease in the former and thus sulphur therapy could be instituted without resorting to the more elaborate procedure of estimating the cystine content of the fingernails.

SUMMARY

Twenty-two cases of arthritis were studied, in order to compare the cystine content of the fingernails with the sedimentation reaction of the blood. It was found that these two reactions varied in inverse proportion. It has been suggested that such variations from normal could possibly indicate a toxic etiology in all the cases studied and that the control of this toxicity might be induced by the institution of sulphur therapy.

1150 Connecticut Avenue.

Clinical Notes, Suggestions and New Instruments

DIAGNOSTIC PROBLEM OF THE CAUSATION OF DYSPNEA: REPORT OF A CASE WITH AUTOPSY

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On Oct. 23, 1931, there came to my office for the first time a man, aged 48, whose chief complaints were shortness of breath and a feeling of abdominal distention. The patient was white, was married and his occupation was assistant manager of an office building.

The patient's story was that about six weeks previously, while getting out some old blue prints, which were covered with dust, he inhaled a good deal of the dust and began to have paroxysms of severe coughing, which had continued more or less constantly. After enduring these coughing attacks for about a month he consulted a physician, who prescribed various forms of treatment but with little success. About October 13, while under treatment for the cough, he suddenly developed dyspnea and a feeling of abdominal distention, particularly above the umbilicus. He found it difficult to breathe when lying down or when standing perfectly erect, his most comfortable position being a slightly stooped one or when sitting in a chair. His sleep was greatly broken by these complaints.

The cough had been dry throughout and was not so severe as formerly but still continued. There had been no nausea or vomiting and no abdominal complaints except the feeling of distention. The bowels had been regular. The patient's own explanation was that he was suffering from gas on his stomach, the pressure of which caused his shortness of breath. The patient explained that he had never been ill before in his life

7. Westergren.[4] Cutler.[5]

and that prior to the onset of his paroxysmal cough he did not have the slightest discomfort of any kind.

The dyspnea had been very distressing to the patient since its onset particularly on even such exertion as in walking from the street car on the level to the door of his home, a short distance away. The duties of his occupation have required going up steps and this has become impossible, owing to the extreme shortness of breath.

The patient was a large obese man, whose height was 6 feet 2 inches (188 cm.) and weight 260 pounds (118 Kg.). His face was rather pale but there was no evidence on inspection of either anemia or cyanosis. The pulse rate was 100 per minute, the blood pressure 126 systolic and 96 diastolic, the respirations 30, the temperature normal. Physical examination of the lungs revealed nothing abnormal. The heart did not appear to be enlarged, the sounds were rather distant, though clear, and the rhythm was normal. The abdomen was pendulous and obese. There was a moderate amount of distention particularly above the umbilicus. Otherwise nothing could be found abnormal.

There was no edema in the extremities or elsewhere.

The patient was intelligent, cooperated, and did not appear to be neurotic. He remarked apologetically that he hoped I would not think him a big baby for making so much complaint.

A specimen of urine examined at this time was completely negative.

Some simple remedies were prescribed pending further observation and examination.

The patient returned to the office, October 27, with his dyspnea somewhat more marked, and an account of sleepless nights. The pulse rate remained 100. An electrocardiogram was made, which showed an auricular rate of 100 and a ventricular rate the same. The PR interval was 0.19 second, the QRS interval 0.10 second, the RT interval 0.34 second. The rhythm was regular, the resistance 1,200 ohms. The electrocardiogram was made with the patient sitting. No therapy relative to the heart had been administered. In lead 1, QRS was low in amplitude, varied, and there were marked slurring and notching. In lead 2 the amplitude of QRS was low, and there was slurring on the downward stroke. In lead 3, QRS was low in amplitude and there was marked slurring. With low electromotive force there was marked slurring and notching of QRS.

The clinical conclusion was that there had been myocardial damage.

Roentgen studies of the heart showed a small degree of dilatation of the aorta and apparent slight increase in the size of the heart, but this was difficult to determine accurately because of marked abdominal distention.

Roentgen study of the lungs disclosed that the posterior mediastinum was apparently clear, though narrow in the center. The diaphragm appeared normal and the excursion was fairly good. There was marked increase of the hilus shadows, particularly on the right. Shadow markings were general on both sides, with some mottling on the right, suggestive of small areas of consolidation.

Examination of the gastro-intestinal tract disclosed that a barium meal passed normally into the stomach. The gastric content was seen about 3 inches above the iliac crest, fairly movable at the pylorus. The anterior and posterior walls filled well. Peristalsis was slightly marked at the antrum. The cap did not fill smoothly. At the end of six hours the stomach was empty and the meal extended from the ileum to about midway of the descending colon, the greater portion of the meal having passed into the colon. A twenty-four hour study was not made.

After these studies it was felt that the only apparent explanation of the patient's disturbance was to be found in the myocardium. The patient was accordingly admitted to the Piedmont Hospital at once, October 27, and over a period of four days was given a total of 6 drachms (22.5 cc.) of tincture of digitalis, when with the appearance of nausea it was omitted. On admission to the hospital the pulse rate was 108, the respiration 30 and the blood pressure 138 systolic, 88 diastolic.

The blood examination revealed: red blood cells, 4,560,000; white blood cells, 7,800; hemoglobin, 90 per cent. The differential count revealed: polymorphonuclear neutrophils, 61 per cent; polymorphonuclear eosinophils, 1 per cent; small mononuclears, 32 per cent; large mononuclears, 6 per cent. All blood cells were normal in size and shape; 200 cells were counted.

The urine, October 27, was normal except for a trace of sugar, acetone and diacetic acid. A few days later these traces had disappeared, except for a remaining trace of acetone and the appearance of a rare hyaline cast.

Both the Kahn and the Wassermann reactions on the blood were negative.

The patient remained in the hospital from October 27 until November 8. At no time was there any rise of temperature. His pulse rate varied from a low of 80 to a high of 110, the average being approximately 90. The respirations as recorded by the nurses varied from 20 to 40, the average being about 28. The frequency of the respirations, however, failed to give an adequate idea of the labored type of breathing. The patient was constantly gasping for breath and his sufferings in this respect became more and more painful to witness. His favorite position was sitting in a chair with his head resting on the bed in front of him. In such an attitude he was able to obtain short periods of comparative but not absolute comfort. Under the influence of morphine or pantopon together with amytal he was able to get as much as an hour at a time of sleep curled up on the bed on his right side with his pendulous abdomen supported by a pillow. What was extremely striking was the fact that, until near the end, cyanosis was conspicuous by its absence; in fact, the lips looked unusually red.

The abdominal distention continued despite satisfactory elimination, although at times temporarily relieved.

Those of us who watched the patient soon abandoned the idea that the state of his heart was responsible for the symptoms so severe and so agonizing.

The record of November 5 gives some indication of the state of the patient. After a restless night, broken by orthopnea and coughing, he could eat but little breakfast, after which there was nausea but no vomiting, and marked restlessness, nervousness and labored breathing. The greater part of the day was spent in a chair and in searching, though in vain, for such an attitude or posture as would give him some modicum of relief. Despite these sufferings the patient maintained efforts at cheerfulness, smiling wanly and expressing appreciation and gratitude for the efforts being made in his behalf. Such was the day.

Matters thus went from bad to worse until on November 8 his condition of distress was truly pathetic and he developed very definite evidence of heart failure. There was marked edema of the legs and diminution of urine, with increase of pulse rate. Although large doses of morphine were administered, the patient was unable to lie down, was bathed in cold sweat, was constantly struggling for breath, and at intervals vomited. Consciousness, perhaps somewhat dulled by morphine, was retained almost to the last breath. Cyanosis appeared only during the last day or two of life. He finally died on the night of November 8.

In summary, a man aged 48, who had never been ill before, began to suffer with a paroxysmal dry cough about the middle of September and about five weeks later with severe dyspnea, which gradually and persistently increased in severity until his death and yet was unaccompanied by any cyanosis until there was evidence of terminal heart failure. The examinations as made give somewhat scanty and quite elusive clues of the cause of his profound disturbances.

Autopsy was performed, the body being opened in the usual manner. Panniculus was abundant, about 2 inches in thickness. When the abdomen was opened there was an outpouring of milky fluid. There was no evidence of peritonitis. The pericardium contained about 3 ounces of clear fluid. There was no evidence of pericarditis. The heart was about normal in size and there were no lesions of the endocardium or myocardium. Each pleural cavity was filled with clear fluid, there being fully 500 cc. in each cavity. The lungs were quite firm, containing little air and being almost bloodless on section. There seemed to be marked atelectasis of each lung. In the right upper lobe there were some areas of edema and bronchial pneumonia. There were no cavities. There was marked enlargement of all bronchial and mediastinal lymph nodules, which were soft and not scirrhous. The liver was about three fingerbreadths below the costal margin and was quite firm throughout; on section there was evidence of passive congestion but otherwise no

abnormal change. The spleen was normal in size and there was a small accessory spleen; on section there were no changes but passive congestion. There was a large nodular mass of lymph nodules up to 4 or 5 cm. in diameter around and in the pancreas, inferior vena cava, duodenum and stomach. This was removed *en masse*. There were no tumor nodules in the intestine, the appendix being apparently normal and about 7 cm. in length.

The stomach showed numerous nodules over the lesser curvature, rather hemorrhagic in appearance, varying in size up to about 5 mm. in diameter, slightly projecting above the mucosa. This was more marked over the lesser curvature of the stomach. There was no pyloric obstruction. Both kidneys were normal in size and appearance; they were normal on section except for passive congestion. There were numerous large lymph nodules all up and down the anterior surface of the spine. There was a lymph nodule palpable in the right groin.

On microscopic examination, sections of the upper lobe of the left lung showed marked engorgement; the alveoli were filled with cellular exudate, round cells and polymorphonuclear and red cells. In areas the lung tissue was practically destroyed and filled with this cellular exudate.

Sections of the lower lobe of the left lung showed a somewhat similar condition; throughout the lung there were numerous oval areas made up of large cells, with large round nuclei containing several deeply stained chromatin granules. There was practically no stroma present in these areas. These cells were arranged in alveoli and they showed marked mucoid degeneration.

Sections of the perigastric glands showed complete destruction of normal tissue, which was replaced by large round cells and large granules. Mitoses were frequent. There was a tendency to alveolar arrangement, as in the lung, and also marked mucoid degeneration.

Sections of the pancreas showed a somewhat similar involvement of glands about the pancreas.

Sections of the stomach showed marked infiltration of the mucosa throughout the gastric wall.

Sections of the kidney showed passive congestion, with some cloudy swelling of the tubular epithelium.

Sections of the heart muscle showed no definite pathologic changes.

Sections of the mesentery glands showed the same condition as the other glands.

Sections of the liver showed marked fatty infiltration and cloudy swelling but otherwise were negative.

Sections of the spleen showed marked passive congestion but were otherwise negative.

The pathologic diagnosis was: (1) gelatinous adenocarcinoma of the stomach with metastases to the lungs and to the mediastinal, mesenteric and retroperitoneal lymph glands; (2) chylous ascites; (3) pulmonary atelectasis with early bronchial pneumonia; bilateral hydrothorax; (4) passive congestion of the liver, spleen and kidneys.

COMMENT

The outstanding clinical feature of this case was the extremely urgent dyspnea without cyanosis until shortly before death, together with a remarkable paucity of positive changes on examination. There were no symptoms whatever in the past history or during the illness pointing to gastric involvement. The roentgen studies of the lungs showed shadows suggestive of small areas of consolidation, but the appearance was so faint as to make uncertain definite interpretation. As the sequel shows, this finding was of importance.

One is impressed with the fact that a far advanced carcinoma of the stomach may occur, together with extensive metastases without gastric symptoms, without impairment of nutrition, and without anemia. The first evidences may be those dependent on metastatic involvement, as in this case. The diagnosis may not be established definitely until the autopsy. In cases of severe progressive dyspnea this possibility should be kept in mind when other demonstrable causes of dyspnea are absent.

478 Peachtree Street, N.E.

CEVITAMIC ACID (ASCORBIC ACID) IN THE TREATMENT OF INFANTILE SCURVY

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Not only is the isolation of a vitamin in crystalline form a matter of theoretical importance but such a discovery also has possibilities in practical clinical application. In 1928 Szent-Györgi [1] isolated a chemical which he thought was hexuronic acid and which he believed to be identical with vitamin C. Well controlled experiments on laboratory animals with this substance demonstrated that it protected against scurvy and cured this disease when experimentally produced. Zilva [2] in 1932 and Waugh and King [3] in the same year published the results of such work. In 1933 the name of the isolated acid was changed to ascorbic acid, as its chemical formula became better known and it was found not to be a hexuronic acid. More recently the Council on Pharmacy and Chemistry of the American Medical Association has designated cevitamic acid as the approved nonproprietary name for this substance.[4]

Merck and Company, who have supplied us with the acid both in tablet and in crystalline form, have designated their product as Cebione. It is a white or slightly yellow-white, odorless crystalline powder, which melts at 189 to 192 C. and is freely soluble in water, soluble in alcohol, but practically insoluble in ether. It oxidizes on exposure to air and light. Its chemical formula is $C_6H_8O_6$. The formula for hexuronic acid, with which it was originally confused, is $C_6H_{10}O_7$. Cevitamic acid may be isolated from various vegetable and animal sources such as cabbage, paprika, orange and lemon juice and adrenal cortex. The product with which Merck and Company have supplied us has been isolated from vegetable sources. It is said that 10 mg. of crystalline cevitamic acid corresponds to approximately 30 cc. of the active vitamin C in fresh orange juice.

Cevitamic acid was first used in human beings by Schultzer [5] in 1933. He gave 40 mg. of the crystalline acid by intravenous injection daily to an adult suffering with scurvy. As a result, the scurvy was cured. Four other reports have appeared in the literature of instances of human scurvy treated and cured with cevitamic acid. Svensgaard [6] reported the cure of two cases (a 15 months old boy and a 10 months old girl baby) in which the crystalline vitamin was given by mouth. She gave 30 mg. daily to each infant. Neumann [7] reported the cure of one case (a 10 months old infant) by giving orally six tablets of Cebione (60 mg.) daily. Brugsch [8] reported the cure of a 13 months old infant by the oral administration of 30 mg. of cevitamic acid daily. Bauke [9] reported the cure of an adult by the intravenous administration of 100 mg. of crystalline Cebione daily.

Kramer [10] in 1933 gave cevitamic acid orally to a series of eighteen healthy infants. He gave it over periods of from one to six weeks. He concluded that premature infants tolerated 15 mg. daily, new-born infants from 20 to 25 mg. daily, and healthy older nurslings from 25 to 50 mg. He reported no adverse results. On the basis of the chemical and laboratory animal work that had been done and the reported

Read before the Chicago Pediatric Society, Dec. 18, 1934.
This investigation was aided by a grant from Merck & Co., Rahway, N. J.
From the Departments of Pediatrics and Chemistry, Northwestern University Medical School.

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8. Brugsch, Herbert: Skorbutheilung durch Cebion, Deutsche med. Wchnschr. **60:** 1203 (Aug. 10) 1934.
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instances in which human scurvy had been treated, we felt that we might properly use cevitamic acid in the treatment of infants with scurvy. We have three such cases to report. Merck and Company have supplied us with cevitamic acid in tablet form, which we have used in our cases. The tablets contain 10 mg. of the acid compounded with lactose and are for oral use. They are best given dissolved in from 10 to 20 cc. of water and are of a not unpleasant taste. For parenteral use the crystalline acid must be used after having been properly neutralized with sodium bicarbonate.[11]

REPORT OF CASES

Through the courtesy of Dr. Edward W. Beasley, we were enabled to treat our first case, an 11 months old male infant who was admitted to the Provident Hospital Aug. 22, 1934, with the clinical diagnosis of scurvy. The infant had had severe attacks of pylorospasm during the first few months of his life and had been on an evaporated milk, water and sugar formula, with no orange juice. On admission the infant showed swelling and tenderness of the arms, legs and costochondral junctions of the ribs. Roentgenograms on admission showed the typical bony changes of scurvy, including the raised periosteum with subperiosteal swellings. Attempts to administer the formula and orange juice to the infant during the first week of his stay in the hospital were most unsuccessful, owing to his vomiting everything offered by mouth. Saline and dextrose solution were given by hypodermoclysis, to combat dehydration. There was no improvement in the scurvy.

August 31, the treatment with cevitamic acid was begun by oral administration of one of the 10 mg. Merck tablets three times daily. This oral dosage of 30 mg. daily was continued for three weeks, and the tablets, dissolved in from 20 to 30 cc. of water, were successfully retained by the infant. Within forty-eight hours after the onset of treatment, it was noted clinically that the infant exhibited a considerably lessened degree of tenderness and irritability. The course was complicated by superficial abscesses, which developed over the left humerus and right shoulder and which drained and healed slowly. One month from the onset of treatment the infant was discharged from the hospital with the scurvy cured and the secondary abscesses completely healed.

Roentgen examination, September 28, showed calcification of the subperiosteal hemorrhages. On admission the hemoglobin was 45 per cent, with 3.5 million red cells. September 20, the hemoglobin was 40 per cent, with 2 million red cells.

The other two cases were both treated at the Children's Memorial Hospital through the courtesy of Dr. Joseph Brennemann. Irene P., aged 1 year, was referred to the hospital from the outpatient department with a diagnosis of scurvy, Oct. 24, 1934. The essential physical changes were spongy, purple, bleeding gums about the erupted teeth, extreme tenderness of both legs, and some general swelling of the right leg. She had never had orange juice or tomato juice. Her entire diet prior to admission was a formula consisting of evaporated milk, water and Karo syrup and farina. The mother stated that until recently she had always had a boiled cow's milk formula. She had had small amounts of cod liver oil between the second and fifth months of life. The history of the present illness dated back two months, when the soreness of her gums was first noticed. For the last two weeks she had cried whenever she was touched.

The remainder of the history and physical examination was essentially negative. There was no anemia. The hospital diet was an evaporated milk, water and Mellin's food formula. Twenty mg. of cevitamic acid was given orally each day for the first four days. After that 40 mg. was given daily for ten days. There appeared to be less tenderness after twelve hours. There was definitely less tenderness and less swelling of the gums in twenty-four hours. After eight days the only remaining clinical evidence of the scurvy was the discoloration of the gums. Roentgen examination of the bones, October 25, was typical for scurvy. No subperiosteal hemorrhages could be identified.

The third patient, Stella R., aged 9 months, was referred to the hospital from the outpatient clinic, Oct. 24, 1934, with the diagnosis of scurvy, aphthous stomatitis and laryngitis. The essential changes on admission were swollen, purplish spongy gums about the erupted teeth, hoarseness, and aphthous stomatitis. There was no localized tenderness. The stomatitis and hoarseness had been noticed six days previously. The other physical and laboratory examinations were negative except for hemoglobin 55 per cent, red blood cells 3,200,000 and blood calcium 9.3 mg. per hundred cubic centimeters. She had been on a diluted cow's milk formula since 1 month of age. One teaspoonful of orange juice a day had occasionally been given. No cod liver oil was used. She was given 20 mg. of cevitamic acid orally each day for four days, then 40 mg. daily for ten days. In two days the gums were less swollen and purple. Four days after admission there was practically no swelling of the gums. In eight days there was only slight discoloration. The hoarseness persisted throughout and was still present one month later. Roentgen examination of the long bones, October 25, was typical for scurvy. No subperiosteal hemorrhages were noted.

CEVITAMIC ACID CONTENT OF BLOOD SERUM

Besides being able to report the efficacy of cevitamic acid in the treatment of these three cases of infantile scurvy, we were enabled, in the last two cases, to determine the cevitamic acid content of the blood serum, both before and after treatment. As far as we know, no such determinations have been previously reported in infantile or adult human scurvy.

The determinations of the cevitamic acid content of the blood serum were made by Dr. Studeville in Dr. Farmer's laboratory of Biological Chemistry at the Northwestern University Medical School. The method used for the test was that described by Tillman and based on the modifications of Harris and Ray.[12] In this method the cevitamic acid in the blood serum is deproteinized by means of trichloracetic acid, and the protein free filtrate is titrated against an indicator, 2.6 dichlorophenol indophenol.

With this method, 4 cc. of blood from Irene P. was withdrawn, October 26, before treatment with cevitamic acid was begun, and the serum was found to contain 0.97 mg. of the acid per hundred cubic centimeters. November 1, after six days of treatment, the cevitamic acid content of her serum had increased to 2.01 mg. and on November 8, after fourteen days, it was found to be 1.97 mg.

The blood of Stella R. was similarly examined. The initial examination, October 26, before treatment was started, showed her blood serum to contain 1.02 mg. of cevitamic acid per hundred cubic centimeters. November 1, after six days of treatment, the blood serum value had risen to 2.08 mg. and on November 8, fourteen days from the onset of treatment, the value was 2.06 mg.[13]

Attempts were also made to analyze the cevitamic acid content of specimens of urine from these two patients, but these examinations did not yield significant data.

COMMENT

Irrespective of the absolute values for the cevitamic acid content of the blood serum here presented, the marked increase in the serum following treatment must be considered significant. Comparing the analyses here given with the few serum values for apparently normal infants of approximately the same ages which we have been able to determine, it would appear that the cevitamic acid content of the blood serum in infants with acute scurvy is extremely low.

We conclude that, in the three cases presented, the oral administration of cevitamic acid seemed to cure infantile scurvy effectively. The dosage used was from 20 to 40 mg. of cevitamic acid daily, given orally for from one to three weeks. We employed the 10 mg. tablets made by Merck and Company and known by the trade name of "Cebione."

This method of treatment seems to be of especial value in those cases of infantile scurvy, as in the first case here reported, in which the infant failed to retain the orange juice offered in the way of treatment. In such cases in which severe

11. **Fisher, B. H., and Leake, C. D.: The Parenteral Administration of Cevitamic Acid (Ascorbic Acid) Solutions, J. A. M. A. 103:** 1556 (Nov. 17) 1934.

12. Birch, T. W.; Harris, L. J., and Ray, S. W.: Microchemical Method for Determining Hexuronic Acid (Vitamin C) Content of Foodstuffs, Biochem. J. **27:** 590, 580, 1933.

13. These results should be taken as comparative rather than as absolute values; estimations which we have since made indicate that these figures are probably too high.

nausea and emesis make difficult or impossible the retention of the usual fruit and vegetable juices containing vitamin C, the smaller amounts of cevitamic acid in solution may be retained when given orally and effect a rapid cure.

The cevitamic acid content of the blood serum appears to be extremely low in infantile scurvy and is definitely increased after treatment with cevitamic acid.

If the chemical methods here mentioned prove sufficiently accurate for the determination of cevitamic acid in blood serum and urine, it might be possible to demonstrate definitely a prescorbutic state in infants and children who manifest no signs or symptoms of active scurvy.

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Special Articles

GLANDULAR PHYSIOLOGY AND THERAPY

THE LACTOGENIC FACTOR OF THE PITUITARY

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NOTE.—*These articles and those in the previous two numbers of* THE JOURNAL *are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues of* THE JOURNAL.—ED.

In 1928-1929 Stricker and Grüter demonstrated that a factor essential to lactogenesis is associated with the anterior pituitary. They did not identify or find other associations of the lactogenic principle; but crude saline and alkaline extracts were shown to initiate milk secretion in suitable rabbits, bitches, sows and cows—some of which were previously castrated. Their results were soon confirmed and further extended to rats, guinea-pigs and goats by Corner, Evans and Simpson, Nelson and Pfiffner, Turner and Gardner, Asdell and others. Also in these confirmatory studies—and in those of Riddle and Braucher on the crop-gland response—simple extracts containing mixtures of anterior pituitary principles were employed and the identity of the lactogenic factor remained unknown.

In 1932 Riddle, Bates and Dykshorn [1] succeeded in isolating the lactogenic factor in a degree of purity quite sufficient to demonstrate its distinction and separateness from the growth, gonad-stimulating and thyreotropic factors. At that time many investigators considered that the status of a true and separate hormone had been demonstrated for only the growth and sex factors, although a score of responses to pituitary extracts were known. For this third distinct (lactogenic) principle we proposed the name "prolactin." [2] Later, Gardner and Turner,[3] using in part the method of preparation of the aforementioned workers, obtained the lactogenic factor fairly free from gonad-stimulating hormone. Their preparations of the lactogenic factor, called by them "galactin," were not tested for the thyreotropic factor, and reliance was put on a final addition of 0.4 per cent tricresol to destroy the growth hormone.

The various methods of preparing prolactin [2] all involve its initial acid or alkaline solution (aqueous, or 60 per cent ethanol), its iso-electric precipitation in an aqueous medium, and repeated washing of this precipitate. Catchpole and Lyons [4] and Collip [5] have also confirmed the isolation of prolactin by these methods. As now prepared, prolactin doubtless contains some inert protein, since about 0.1 mg. is required to give a detectable response (crop-gland). Salt free preparations at p_H 8.0 withstand boiling for one hour, with relatively little loss of potency. It is completely destroyed by tryptic digestion.[6] In solution it is stable in the presence of tricresol and is completely soluble at p_H 8.0. It can be obtained from the anterior pituitary only; beef glands yield larger amounts than do those of sheep or swine.

A knowledge of the various responses elicited by a hormone is necessary to a wise choice of a method for its bio-assay, and the "lactogenic" factor has proved to be more ancient than lactation. There are four known responses, or aspects of tissue response, to prolactin to consider for purposes of assay. These responses are lactation in mammals, growth of crop-glands in pigeons, broodiness in fowls and marked size diminution in active gonads of adult pigeons and fowl. The two last named responses are unsuitable for various reasons, but the crop-gland and lactation responses require consideration.

The crop-gland response in doves or pigeons was shown [7] to be a reliable and practicable method of assay. Age and race of the test animal considerably affect the values found. For accurate assay five birds, either from one and a half to two months after hatching or nonincubating adult pigeons, are injected once daily for four days and killed ninety-six hours after the first injection. The weight of the two crop-glands after such dosage reveals the amount of new growth produced and thus the quantity of lactogenic factor injected. The "bird unit" was defined [2] as "the amount of prolactin which is equivalent to 1 mg. of (their) preparation No. 51, this being also the threshold dose per 150 grams body weight of immature doves and pigeons." The published data facilitate the calculation of this "unit" in any lactogenic preparation.

The induction of the lactation response in pseudopregnant rabbits has been used for a rough bio-assay (— to ++++) of the lactogenic factor, after various workers noted the unsuitability of rats and mice for this purpose. Gardner and Turner [3] proposed such a "rabbit unit defined as that minimum amount of extract which injected during a period of seven days at daily intervals is required to induce a plus three (+++) or plus four (++++) response (appearance of dissected mammaries) in rabbits previously pseudopregnant for a period of twelve to sixteen days." Though satisfied with the crop-gland quantitative assay, Lyons and Catchpole [8] report good qualitative tests from adult virgin guinea-pigs castrated during estrus and injected immediately.

There is no evidence that the development of mammary tissue is assisted in the slightest degree by the

From the Carnegie Institution of Washington, Station for Experimental Evolution.

1. (*a*) Riddle, Oscar; Bates, R. W., and Dykshorn, S. W.: Proc. Soc. Exper. Biol. & Med. **29:** 1211 (June) 1932; (*b*) Anat. Rec. (abstr.) **54:** 25 (Nov.) 1932.
2. Riddle, Oscar; Bates, R. W., and Dykshorn, S. W.: Am. J. Physiol. **105:** 191 (July) 1933.
3. Gardner, W. U., and Turner, C. W.: Missouri Agriculture Experimental Station, Research Bulletin **196:** 1-60 (June) 1933.
4. Catchpole, H. R., and Lyons, W. R.: Anat. Rec. **55:** 49 (March) 1933.
5. Collip, J. B.: Tr. Congr. Am. Physicians & Surgeons: 15th Session **47,** 1933.
6. Bates, R. W.; Riddle, Oscar, and Lahr, E. L.: Proc. Soc. Exper. Biol. & Med. **31:** 1223 (June) 1934.
7. Riddle, Bates and Dykshorn, footnotes 1*a* and 2.
8. Lyons, W. R., and Catchpole, H. R.: Proc. Soc. Exper. Biol. & Med. **31:** 299 (Nov.) 1933.

lactogenic factor, and there is evidence [9] that it has no such favoring effect. Some reports indicate that an unidentified pituitary factor favors mammary growth; but the lactogenic factor apparently acts on fully prepared mammary tissue solely to initiate and excite milk secretion. The mechanism by which prolactin is released, the reason for its impotence during pregnancy, the rôle of a uterine factor and of continued suckling or emptying of the milk ducts on the persistence of milk secretion, and still other topics in lactation physiology are very little known. Large amounts of prolactin—twice that found in adults—have been found in the pituitaries of fetal calves.[10] Similar amounts were obtained from the bull, steer and nonpregnant cow.[10]

A group of investigators at the University of Chicago have recently proposed the hypothesis, based on experimental observations, that the lactogenic factor of the pituitary is suppressed during pregnancy by estrogenic substance, normally produced in large amounts during this period. At the same time the estrogenic factor causes growth of the mammary glands. At parturition, with loss of the placenta, the level of estrogenic substance in the blood stream drops sharply, thus permitting the release of the lactogenic factor from the pituitary. The breasts, having been prepared in the meantime, then respond to this factor with secretion of milk. Riddle, Bates and Dykshorn showed that by first causing suitable growth of the mammary substrate, lactation may be produced even in males.[1]

Kurzrok and his associates [11] treated twenty-nine women in whom lactation had failed to develop adequately by the sixth day post partum with from 75 to 400 units of prolactin. Within three to nine days the daily milk production increased by from 50 to 400 Gm. in twenty-five of these cases. There were four failures, in three of which a total of 110 units or less was received. In eight additional women whose milk secretion was apparently normal, similar dosage probably induced no change. No adverse effect of clinical administration was observed. Further studies are needed. The dose of prolactin for subnormal human lactation was provisionally fixed at an initial 150 (bird) units, usually followed within twelve to twenty-four hours by 100 units.

CHROMATOPHOROTROPIC PRINCIPLE OF THE PARS INTERMEDIA OF THE PITUITARY

BERNHARD ZONDEK

JERUSALEM, PALESTINE

It has long been known that the hypophysis produces an active substance which exerts an influence on the chromatophores of cold-blooded animals. When one injects an extract of the posterior lobe of the pituitary into the lymph sac of a light colored frog (one previously exposed to light rays), the color of the skin becomes dark after a very brief interval. This change in color is due to the marked expansion of the melanophores.[1] Swingle, as well as Allen, Atwell and Smith, elicited a darkening of the skin in both normal and hypophysectomized tadpoles, by means of implantation of posterior pituitary tissue and by placing the animals into solutions of posterior pituitary extract. The expansion of melanophores can be elicited also by placing pieces of skin which have been cut from the animal into an extract of the posterior pituitary; the differing degrees of expansion have been used as a measure for quantitative standardization (Hogben and Winton, P. Trendelenburg, Loewe, Dietel, Jores). In employing this melanophore reaction in the isolated skin of frogs, it must be borne in mind that, whenever the solutions employed pass the neutral point and become acid, expansion occurs even in the absence of the specific principle; moreover, to obviate nonspecific reactions the solutions must remain isotonic. The reaction can be produced also by various nonspecific substances contained in organ extracts [2] and by quinine, curarine, choline, acetylcholine, caffeine, and various preservatives (Trendelenburg, Di Mattei, Ehrhardt).

Krohn and I [3] employed the erythrophore-reaction in a certain fish to demonstrate the presence of chromatophore-stimulating hormone. When one injects an extract of posterior pituitary into a certain minnow (Phoxinus laevis), which is from 7 to 9 cm. long, a characteristic red coloration appears within half an hour at the point of attachment of the thoracic, abdominal and anal fins. The appearance of this red coloration is not dependent on exogenous factors, such as light, nor on the p_H of the injected solution; it can be produced only by the chromatophore-expanding hormone and is, therefore, "hormone specific." That quantity of hormone which produces a deep red coloration of from 4 to 9 square millimeters at the point of attachment of the fin is designated as one Phoxinus unit.[4]

All authors agree that the chromatophorotropic substance is produced in the intermediate lobe of the hypophysis (Swingle, Hogben and Winton, Allen, Atwell, Houssay and Unger, Trendelenburg, van Dyke). This is also evident in a curious phenomenon described by Bayer,[5] who observed an individual frog (Rana esculenta) that was conspicuous by reason of its unusually light color; this persisted even when the animal was kept in the dark. Histologic examination showed that, in this animal, a parasite had destroyed the pars intermedia of the pituitary, while the other portions of the gland were completely unaffected.

We analyzed the various lobes of pituitary glands of cattle and found that their hormone content was as follows:

1. Pars intermedia, 80,000 Phoxinus units per gram of tissue.
2. Posterior lobe, 11,904 Phoxinus units per gram of tissue.
3. Anterior lobe, 2,857 Phoxinus units per gram of tissue

We call the hormone "intermedin."

Intermedin occurs in cold blooded as well as in warm blooded animals. In the pituitary gland of the minnow, we found 7 Phoxinus units; of the frog, 10 Phoxinus units; of the chicken, 75 Phoxinus units; of the rabbit, 200-300 Phoxinus units; of the sheep, 2,500 Phoxinus units; of cattle, 5,000-6,000 Phoxinus units; of the monkey (Macacus rhesus), 1,000 Phoxinus units, and

9. Riddle, Bates and Dykshorn.[2] Gardner and Turner.[3]
10. Bates, R. W.; Riddle, Oscar, and Lahr, E. L.: Unpublished data.
11. Kurzrok, R.; Bates, R. W.; Riddle, Oscar, and Miller, E. G., Jr.: Endocrinology **18**: 18 (Jan.-Feb.) 1934.

Translated from the German for the author by Marion B. Sulzberger, M.D., New York.

1. Hogben, L. T., and Winton, F. R.: Biochem. J. **16**: 619, 1922; Proc. Roy. Soc. London, s. B. **93**: 318, **94**: 151, 1922; **95**: 15, 1923; Brit. J. Exper. Biol. **1**: 249, 1924.
2. Jores, A., and Helbron, O.: Arch. f. Gynäk. **154**: 243, 1933.
3. Zondek, Bernhard, and Krohn, Hans: Naturwissenschaften **8**: 134, 1932; Klin. Wchnschr. **11**: 405 (March 5), 849 (May 14), 1293 (July 30) 1932.
4. Phoxinus unit is abbreviated P. U. and in German P. E. (Einheit).
5. Bayer, G.: Endokrinologie **6**: 249 (April) 1930.

of man, 4,000-7,000 Phoxinus units. Analysis of the hypophysis of human beings who died of various diseases showed no marked variation of intermedin content. In three pituitaries from Negroes, we found the same intermedin content as occurs in the glands of white men.

The hormone leaves the hypophysis by the path of the pituitary stalk. According to our investigations, it is demonstrable only in the walls of the third ventricle, where the vegetative centers are located, and nowhere else. In contradiction to this, Krogh and McLean,[6] using the melanophore reaction, demonstrated the hormone in small quantities in the blood as well. Jores [7] reports a content of from 0.5 to 1.5 units per liter of plasma, estimated on the basis of alkaline-Vögtlin standard.

In contrast to the changes in the case of the gonadotropic factors, we found no change in quantities of chromatophore-expanding hormone in pregnancy.

The question arises: Is the chromatophore-stimulating substance an independent hormone? Kamm, Aldrich, Grote, Rowe and Bugbee succeeded, as is well known, in the separation of the oxytocic factor ("Pitocin") and the pressor principle ("Pitressin").[8] They believe that the melanophore-stimulating substance which is present in varying amounts in Pitressin is possibly a "derived hormone." They emphasize, however, that to date there is no proof of the presence of more than two hormones (i. e., Pitocin and Pitressin).

We are of the opinion that the chromatophorotropic substance must be a specific hormone, for the following reasons:

1. Intermedin is lacking in the suboccipital liquor, while Pitocin and Pitressin are present.

2. Intermedin can be demonstrated in the pituitary colloid, while Pitocin and Pitressin are absent (Cushing and Goetsch). Thus, intermedin occurs independently in the organism; i. e., it is present without the oxytocic and pressor factors.

3. The quantitative proportion of intermedin to the oxytocic and pressor factors is quite different in the different lobes of the pituitary.

Proof that the chromatophore-expanding substance is an independent hormone was finally brought when we succeeded in isolating intermedin. Lack of space prevents mention of further details. Mention need be made only of a few characteristics of the hormone: Intermedin is thermostabile at boiling temperature; it is resistant to cold; it is very susceptible to the action of proteolytic ferments, and it is quickly inactivated by irradiation with ultraviolet rays. The hormone is insoluble in ether, acetone and acetic esters, and it is soluble up to 5 per cent in benzene and in chloroform. The hormone's solubility in alcohol increases with the purity of the preparation. Intermedin is easily adsorbed. Its susceptibility to the action of mineral acids is approximately parallel to that of Pitocin and Pitressin, while it is less susceptible to the action of alkalis. These differences were already indicated by the investigations of Hogben [1] and Gordon. We were able to produce intermedin as a fine, amorphous, white powder with a dry weight of 1 microgram (0.000001 Gm.) per Phoxinus unit.

6. McLean, A. J.: J. Pharmacol. & Exper. Therap. **33**: 301, 1928.
7. Jores, A.: Ztschr. f. d. ges. exper. Med. **87**: 266, 1933.
8. Kamm, O.: J. Am. Chem. Soc. **50**: 573, 1928. Kamm, O.; Grote, I. W., and Rowe, L. W.: Proc. Am. Soc. Biol. Chem., J. Biol. Chem. **92**: lxix (June) 1931. Rowe, L. W.: Endocrinology **12**: 663 (Sept.-Oct.) 1928.

In cold blooded animals (frogs, fishes), intermedin elicits the expansion of the chromatophores. After intravenous injections of large quantities of intermedin into warm blooded animals, we were able to recover only small traces (0.14 per cent) in the blood, after from one to three hours; but none could be demonstrated in the organs or in the urine.

Intermedin exerts no influence on the basal metabolic rate, on the blood pressure, or on the glycogen and fat contents of the liver. On the other hand, it is possible that it reduces the epinephrine content of the adrenals, although the variations are insignificant. It is worthy of mention that Jores attributes an importance to intermedin in the adaptation of the optic organs to darkness, in man as well as in animals.

It is now necessary to consider the question of the action of intermedin on water metabolism, and of its identity with the antidiuretic factor.

Marion B. Sulzberger of New York,[9] employing an intermedin preparation obtained from me, achieved striking success in the treatment of two cases of diabetes insipidus. Both the fluid intake and the output were greatly reduced. A confirmatory observation was made by Harald Bark of Stockholm, who observed reduction of urine output from 5.0 to 1.5 liters, and an increase of specific gravity from 1.005 to 1.020.

Subsequent extensive investigations, which were undertaken at my suggestion in the Pharmacological Laboratory of Hoechst, I. G. Farbenindustrie, showed that fundamental differences exist between the action of intermedin and that of Pitressin in their action on water metabolism. The characteristic action of Pitressin consists in reduction of fluid output, combined with both relative and absolute increase of sodium chloride excretion. Intermedin, on the other hand, while it definitely influences fluid output, does not affect salt excretion; the exact manner of its action is as yet unknown.

It seems to me that these results suggest the possibility that intermedin may act only in certain types of diabetes insipidus and that, perhaps in this way, a differential diagnostic criterion may be formed which will help to distinguish between different forms of this disease.

The melanophore-stimulating hormone and the erythrophore-stimulating hormone may be two different substances; or, perhaps, different forms (alkaline, acid) of the same hormone (Jores).[10]

9. Sulzberger, M. B.: The Pituitary Hormone Intermedin, J. A. M. A. **100**: 1928 (June 17) 1933.

10. Translator's Note: Further clinical experience with intermedin in the treatment of diabetes insipidus permits me to state that the antidiuretic effect of various intermedin preparations seems to be independent of, and not to run parallel with, their Phoxinus erythrophore-expanding potency. It is therefore evident that one cannot employ the Phoxinus reaction to standardize a preparation for its antidiuretic effect in diabetes insipidus.

Furthermore, according to frog melanophore standardizations, which were kindly carried out for me by Dr. Oliver S. Kamm, an intermedin preparation which had assayed high in Phoxinus erythrophore-expanding activity was very low in frog melanophore-stimulating action. And conversely, Phoxinus erythrophore standardization, kindly performed for me by Dr. Charles Spark at the Montefiore Hospital of New York City, showed that a certain pituitary preparation, which was high in frog melanophore-stimulating activity, had practically no demonstrable action on the Phoxinus erythrophore. This potent frog melanophore-stimulating preparation (which Doctor Kamm was kind enough to send me) differed from intermedin in that it had no effect in controlling diuresis in my cases of diabetes insipidus.

These unpublished observations may be considered as supporting the suggestion contained in Dr. Zondek's last paragraph.

Moreover, it seems to me more than probable that there are at least three different principles to be considered:

1. A Phoxinus erythrophore-expanding principle (present in intermedin);
2. A frog melanophore-expanding principle; and
3. An antidiuretic principle, active in diabetes insipidus in man (present in intermedin in varying quantity).

It remains undecided whether each principle is actually an independent hormone, or whether these divergent effects are due to so-called "derived" substances.

Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.
CHICAGO

NOTE.—*In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.*—ED.

THERAPY OF ACNE AND ACNE ROSACEA

OUTLINE BY THEODORE CORNBLEET, M.D.

ACNE

Local and systemic measures are used.

Systemic Treatment.—1. Such predisposing disturbances as constipation and other gastro-intestinal abnormalities, or pelvic and menstrual derangements that may be present, should be corrected. One should seek out and remove foci of infection.

2. Alcohol should be prohibited, and tobacco, coffee and tea reduced to a minimum. Foods rich in sugar and fats and oils, particularly the vegetable fats, should be taken sparingly. Articles that frequently produce distress should be avoided. In this group may be included pickles, rich cheeses, pork and sausages. Those things which may cause congestion of the face, such as very hot soups or highly seasoned foods, should be excluded. The diet, however, should not be so restricted or one sided as to fail to maintain good nutrition.

3. Tonics and alteratives may be employed as indicated: e. g., Solution of Potassium Arsenite (from 0.5 to 1 cc. three times a day) or, if there is hypochromic anemia, Ferrous Carbonate (0.3 Gm. three times a day) with Strychnine Nitrate (1 mg.) possibly, unless there is exaggerated reflex excitability. Diluted Hydrochloric Acid (1 cc. in water after meals) may be of advantage in cases of hypochlorhydria. Yeast and liver are recommended by some, the laxative action of the former, and the hematinic action of the latter possibly determining the choice. Quinine sulphate 0.2 Gm. three times a day and adrenal gland substance 0.25 Gm. three times a day are much used.

4. Foreign protein and vaccines occasionally give brilliant results but often are failures. Some recommend autogenous vaccines, while others claim as much for stock vaccines. A combination vaccine of acne bacillus, staphylococcus and the colon bacillus ("mixed acne vaccine") is probably as good as any. The dosages should be built up to produce and maintain a local reaction. The intervals of administration, possibly four to seven days, should be so spaced as to get a rhythm of reaction and subsidence.

5. Some drugs, such as iodides and bromides, have a tendency to produce acne-like lesions or to aggravate an existing acne. To those with acne these drugs, including iodized salt, should not be given; or, if such an eruption appears during their administration, they should be promptly withdrawn and the amount of sodium chloride in the diet increased.

Local Treatment.—1. Cleanliness: The ordinary use of soap and water is sufficient. Under the mistaken notion that blackheads are due to uncleanliness, fanatic measures are sometimes employed to remove imagined dirt. Generally acne is associated with a skin that has enough oil. It is therefore generally unnecessary to use creams. Cleansing tissue and the multitude of beauty creams are not only a waste of money in this condition but aften positively harmful. Indeed, the deceiving propaganda with which they are foisted on the gullible should be prohibited. Face powders containing heavy metals must be excluded.

2. Drainage: Comedones should be removed by an instrument for that purpose and not be squeezed. The skin should first be thoroughly softened by hot water soaks for from half an hour to a whole hour. It is best for the physician himself to extract the comedones and at the same time to have him carefully open pustules with a narrow bladed bistoury.

3. Keratolytics: These favor drainage by hastening the maturing of pustules and by producing epidermal exfoliation at the neck of the follicles in addition to producing a curative hyperemia. Much used are:

(*a*) "Lotio Alba" (prescription 1), which might be prescribed in double or even triple the strength in accordance with the reactivity of the skin. It is applied before retiring and permitted to dry on.

PRESCRIPTION 1.—*"Lotio Alba"*

℞	Zinc sulphate	5.00 Gm.
	Sulphurated potassa	5.00 Gm.
	Rose water, to make	100.00 cc.

M. Label: "Shake well" and apply two or three times a day after "steaming" face.

(*b*) Solution of Sulphurated Lime (Vleminckx's lotion), which must be diluted from eight to sixteen times with hot water, used for an hour on a gauze compress. A mild irritation manifesting itself after several days by hyperemia should be aimed at as the result of treatment with either preparation, and the concentration of the applications should be increased if this is not attained. After mild scaling and erythema appears, treatment is suspended and a soothing application such as Calamine Lotion or Calamine Liniment may be employed, the latter being used if the former is too "drying." Recovery from this irritation is followed by a resumption of the original lotion to induce mild irritation again.

(*c*) Peeling Paste, such as Lassar's Peeling Paste (in the National Formulary under the title of Betanaphthol Paste, containing Betanaphthal 10 per cent, Precipitated Sulphur 50 per cent, made into a paste by means of equal parts of petrolatum and soft soap). This is a still more powerful discutient appeal to the skin, of special value in indurated acne, and suitable only for individuals with an especially sluggish skin.

PRESCRIPTION 2.—*Resorcinol (1 Per Cent) Paste*

℞	Resorcinol	0.35 Gm.
	Zinc oxide Starch ..... of each	5.00 Gm.
	Petrolatum	15.00 Gm.

M. Label: Apply at bedtime.

It is applied liberally and washed off after fifteen, thirty or forty-five minutes. As they are difficult to control, it is not advisable to put peeling pastes into the patients' hands. Their application must be carefully timed by the physician.

The different degrees of irritative effect secured by these three different methods of applying must be care-

fully adjusted to the requirements of the case. One should always start with the milder preparation and work up to the stronger only after the milder has proved not to be irritating.

4. Rubefacients: In cases in which keratolytic action is not required, the curative hyperemia may be induced most advantageously perhaps by very mild applications of resorcinol, which, being colorless, is especially suitable for the face.

(*a*) Resorcinol Pastes are official in the National Formulary in two forms: the Mild Resorcinol Paste (containing 10 per cent) and the Strong Resorcinol Paste (containing 20 per cent). The latter is strong enough to be used as a peeling paste. Both are too strong to be advisable as an initial application to a skin whose irritability is unknown. Hence it is well to start, e. g., with 1 per cent of resorcinol (prescription 2) and gradually increase the strength until the desired degree of peeling effect has been secured.

PRESCRIPTION 3.—*Sulphur (2 Per Cent) Paste*

℞	Precipitated sulphur	0.50 Gm.
	Zinc oxide Starch ..... of each	5.00 Gm.
	Petrolatum	15.00 Gm.

M. Label: Apply at bedtime.

(*b*) Sulphur is especially indicated by simultaneous existence of seborrhea. It is again best used in the form of a paste (prescription 3), starting possibly with 2 per cent strength and increasing to 5 and 10 per cent. Dark discoloration of the openings of the sebaceous glands and of the comedones is one of the unfavorable effects of sulphur in certain individuals that may make it impossible for them to use this agent.

All of these salves are, of course, suitable for application only at bedtime. During the day one might prescribe the use of sulphur added to the patient's favorite face powder (prescription 4).

PRESCRIPTION 4.—*Face Powder with Sulphur*

℞	Precipitated sulphur	3.00 Gm.
	Face powder	30.00 Gm.

M. Label: Apply to face during the day.

4. Irradiation: (*a*) Roentgen therapy is the most valuable single agent to be used. It is helpful in a majority of cases but fails in some. The greatest care should be used in calculating dosage, and none but an experienced operator should employ this measure. Fractions of an erythema dose (e. g., 75 roentgens of unfiltered rays weekly; eyes, ears, eyebrows, scalp and other hair, and the thyroid carefully shielded) are used at regular intervals. This should not be carried out indefinitely, but the total dosage limited. A visible erythematous reaction in the skin must never occur, and the development of skin atrophy must ever be kept in mind, most especially when one is tempted to employ roentgenization in recurrences. During the use of roentgen therapy no applications that are irritating, even mildly, may be employed. (*b*) In some patients who are resistant to x-rays, ultraviolet rays are sometimes effective. These are used to the point of achieving a mild erythema and scaling. The dosage is increased according to tolerance to maintain this reaction. The applications are generally given at weekly intervals or as soon as the reaction subsides. Ultraviolet rays are also used to improve the appearance of the pits and scars from acne temporarily. To do this a severe enough reaction must be obtained to ensure thorough exfoliation.

ACNE ROSACEA

For the most part, the treatment of acne rosacea is the same as for acne itself. The earlier the treatment commences, the better are the results obtained. When the stage of permanent congestion is reached, it is difficult to ameliorate.

General Measures.—These are of even greater importance in acne rosacea than in acne vulgaris.

1. Both the gastro-intestinal and genital tracts influence acne rosacea. Care of digestive disturbances and constipation is important. Dietary control as suggested in acne is necessary here, only more so. Foods that dilate the blood vessels of the skin should be avoided. These include steaming hot ones and those with many condiments. Alcohol and coffee must be excluded. Menstrual disorders and pelvic derangements should be corrected. Focal infections are searched for and removed.

2. If possible, occupations that subject the face to any irritations should be given up or modified. Exposure to rough weather and excessive heat is to be avoided.

Local Measures.—1. Keratolytic Lotions: These are nearly always a part of the treatment. The two most important are, as with acne, the "lotio alba" and "Vleminckx's solution." By a judicious use of them, of the right concentrations to obtain and continue an almost imperceptible exfoliation, the congestion and pustules can in a large measure be removed. The local application of extremes of heat and cold should be carefully avoided in the treatment of acne rosacea.

2. Irradiation: (*a*) Roentgen therapy is effective and is carried out in repeated fractional doses. As in acne, care should be exercised to give a small enough dose so as not to obtain an erythematous reaction at any time or to produce skin atrophy as an end result.

(*b*) Ultraviolet rays by means of the water-cooled quartz lamp are useful at times.

3. Cryotherapy: Carbon dioxide snow (dry ice) shaped into pencils not over 1 cm. in diameter may be applied with a fair degree of pressure for not more than one second at a spot. If this causes no reaction or improvement, the time of application may be gradually increased but always to a point short of an excessive reaction.

4. Electrolysis can be used to advantage to remove the dilated capillaries and venules, which often are associated with or remain after the general congestion is relieved. The needle, which is made the negative pole, is inserted into the venule and a current of from 1 to 2 milliamperes is applied until the area turns white.

PRESCRIPTION 5.—*Paraffin-Petrolatum Cerate*

℞	Paraffin	10.0
	Petrolatum	20.0

M. Label: Spread aseptically on sterile gauze and apply to raw surface.

5. Surgery to remove the redundant tissue of the nose in the stage called rhinophyma can accomplish a great deal cosmetically. A sharp scalpel or razor blade is used to pare away enough tissue to leave the original shape of the nose. Care must be taken not to cut or injure the cartilage. To guard against this, one should insert a finger into the nose to act as a director. Surgical diathermy may be used. The small excrescences can be conveniently coagulated and the larger ones

removed with the cutting current. The entire procedure may be carried out at one time or smaller areas treated at different sittings. A 2 per cent solution of procaine hydrochloride with epinephrine serves as an adequate local anesthetic. Hemorrhage is controlled easily with hot gauze compresses changed every two to four hours the first day and several times a day after that. The raw area may be treated as a burn and covered with paraffin-petrolatum cerate (prescription 5) gauze changed frequently enough to prevent the formation of hard crusts. Epithelization takes place readily from the islands remaining in the follicles and complete healing is a matter of from three to five weeks. The results are excellent.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ALURATE.—Allylisopropylbarbituric acid.—Allylisopropylmalonyl urea. — $(C_3H_5)(C_3H_7)CCONHCONHCO$. Alurate differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced, one by an allyl group and the other by an isopropyl group.

Actions and Uses.—The actions and uses of alurate are essentially similar to those of barbital, but alurate is more active than barbital and is used in correspondingly smaller doses. Fractional doses are used as a sedative and larger doses as a hypnotic. Therapeutic doses act on the higher centers of the brain and are claimed not to exert any apparent injurious effect on the heart, circulation or kidneys.

Dosage.—For mild cases of insomnia, 0.065 Gm. (1 grain) may be administered at bedtime. In obstinate cases, 0.13 Gm. (2 grains) may be given.

Manufactured by Hoffmann-LaRoche, Inc., Nutley, N. J. U. S. patent 1,444,802 (Feb. 13, 1923; expires 1940). U. S. trademark 230,059.

Alurate Tablets, 1 gr.

Elixir Alurate: Each fluidrachm contains alurate ½ grain (approximately 0.9 Gm. per hundred cubic centimeters) in a palatable elixir containing alcohol, 20 per cent.

Alurate occurs as a fine, white, odorless, crystalline powder, with a slightly bitter taste; completely soluble in alcohol, chloroform and ether; very slightly soluble in cold water; insoluble in the paraffin hydrocarbons. A saturated aqueous solution is acid to litmus paper. Alurate melts at 138 to 142 C.

Place about 0.3 Gm. of alurate in a glass stoppered cylinder, add a mixture of 1 cc. of normal sodium hydroxide solution and 5 cc. of water, shake the contents for one minute, filter through paper and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in an excess of ammonia water; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in an excess of ammonia water. Boil about 0.5 Gm. of alurate with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with the evolution of ammonia. Dissolve about 0.1 Gm. of alurate in 1 cc. of sulphuric acid: not more than a slight yellow color results. Place about 1 Gm. of alurate in a 25 cc. glass stoppered cylinder, add 10 cc. of water, shake the mixture for one minute, filter through paper and divide into two portions; to one portion add 1 cc. of acetic acid and 0.5 cc. of a saturated bromine water: an immediate discoloration occurs; to the other portion add 0.1 cc. of tenth-normal potassium permanganate solution: a yellow color appears immediately, turning to brown.

Boil about 0.5 Gm. of alurate with 50 cc. of water for two minutes: no odor develops; cool and filter: separate portions of 10 cc. each of the filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution *(chloride)*; no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution *(sulphate)*; no coloration or precipitation on saturation with hydrogen sulphide *(salts of heavy metals)*. Incinerate about 1 Gm. of alurate, accurately weighed: there is not more than 0.1 per cent residue. Dissolve about 0.5 Gm. of alurate, accurately weighed in 25 cc. of previously neutralized alcohol, dilute with an equal volume of water previously boiled to remove carbon dioxide and titrate with tenth-normal sodium hydroxide solution, using thymolphthalein as an indicator: the amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent nor more than 101.5 per cent allylisopropylbarbituric acid.

SODIUM ALURATE.—Sodium allylisopropyl barbiturate. —$Na(C_3H_5)(C_3H_7)CCONHCO:NCO$.—The monosodium salt of allyl isopropyl barbituric acid. Sodium alurate differs from soluble barbital U. S. P. (sodium diethylbarbiturate), in that both of the ethyl groups of the latter are replaced, one by an allyl group and the other by an isopropyl group.

Actions and Uses.—The same as those for alurate. The soluble sodium salt is intended for oral or rectal administration, particularly as preanesthesia medication. Sodium alurate may also be used in other cases in which large individual doses are required.

Dosage.—The average preoperative dose is 1 grain for each 15 pounds of body weight (10 mg. per kilogram). One third of the calculated dose is given ten or twelve hours prior to operation, (usually the evening before); the remainder, two hours before operation. Experience is necessary in the use of these large dosages, as the amount of the drug must be adjusted to the individual patient in order to avoid undesirable reactions.

Manufactured by Hoffmann-La Roche, Inc., Nutley, N. J. U. S. patent 1,444,802 (Feb. 13, 1923; expires 1940). U. S. trademark 230,059.

Capsules Sodium Alurate, 3½ grains: The content of each capsule is equivalent in potency to approximately 3 grains of alurate.

Sodium alurate is a white microcrystalline, hydroscopic, odorless powder, with a slightly bitter taste; very soluble in water; very slightly soluble in alcohol; practically insoluble in ether. An aqueous solution of sodium alurate is alkaline to litmus.

Dissolve about 0.5 Gm. of sodium alurate in 100 cc. of water, add an excess of diluted hydrochloric acid; collect the resultant allyl isopropyl barbituric acid on a filter, wash and dry at 90 C.: it melts at 139 to 140 C. Incinerate about 1 Gm. of sodium alurate: the residue responds to tests for sodium carbonate. Boil about 0.5 Gm. of sodium alurate with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with the evolution of ammonia. Dissolve about 0.3 Gm. of sodium alurate in 10 cc. of water and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in an excess of ammonia water; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in an excess of ammonia water.

Dissolve about 0.5 Gm. of sodium alurate in 50 cc. of water, add 5 cc. of diluted nitric acid and filter through paper: separate portions of 10 cc. each of the filtrate yield no opalescence on the addition of 1 cc. of silver nitrate solution *(chloride)*; no turbidity on the addition of 1 cc. of barium nitrate solution *(sulphate)*. To about 0.2 Gm. of sodium alurate in 25 cc. of water, add 1 cc. of diluted hydrochloric acid, filter through paper: the filtrate yields no coloration or precipitation on saturation with hydrogen sulphide *(salts of heavy metals)*. Add about 1 Gm. of sodium alurate to 1 cc. of sulphuric acid: the solution is colorless *(readily carbonizable substances)*. Transfer about 1 Gm. of sodium alurate, accurately weighed, to a glass stoppered cylinder, add 50 cc. of anhydrous ether, stopper and shake for ten minutes; decant the supernatant liquid through filter paper and repeat twice, using 25 cc. and 15 cc. portions, respectively, of ether, utilizing the same filter; evaporate the combined filtrates to dryness in a tared beaker and dry to constant weight at 90 C.: the residue does not exceed 0.2 per cent *(uncombined allylisopropyl barbituric acid)*.

Dry about 1 Gm. of sodium alurate, accurately weighed, at 90 C. for forty-eight hours: the loss in weight should not be less than 4.5 per cent nor more than 7.5 per cent. Transfer about 0.5 Gm. of sodium alurate, accurately weighed, to a suitable Squibb separatory funnel, add 50 cc. of water, followed by addition of 10 cc. of diluted hydrochloric acid; extract with eight successive portions of ether of 25 cc. each, evaporate the combined ethereal extractions to dryness in a stream of warm air and dry to constant weight at 90 C.: the amount of allylisopropyl barbituric acid corresponds to not less than 90 per cent nor more than 91 per cent, calculated to the dried substance. Transfer the acidulated aqueous portion from the foregoing immiscible solvent extraction to a tared platinum dish and evaporate to dryness on a steam bath; to the residue obtained add 5 cc. of sulphuric acid; heat *cautiously* until the excess of sulphuric acid has been volatilized; repeat twice, using portions of 1 cc. each of sulphuric acid each time; add about 0.5 Gm. of ammonium carbonate; ignite to constant weight, and weigh as sodium sulphate: the percentage of sodium corresponds to not less than 9 per cent nor more than 10 per cent when calculated to the dried substance.

DIOTHANE (See THE JOURNAL, Dec. 8, 1934, p. 1777).

The following additional dosage form has been accepted:

Diothane Ointment 1% in Ophthalmic Tube: Collapsible tubes containing an aqueous solution of diothane, 1 per cent, in an oxycholesterin base.

NEO-SYNEPHRIN HYDROCHLORIDE (See THE JOURNAL, June 16, 1934, p. 2024).

The following additional dosage form has been accepted:

Neo-Synephrin Hydrochloride Jelly: Neo-synephrin hydrochloride, 0.5 per cent, incorporated in a jelly-like bland base composed of tragacanth, chondrus, glycerin and water. Sodium benzoate 0.5 per cent is present as preservative. The product is supplied in collapsible tube containers.

DILAUDID (See THE JOURNAL, June 16, 1934, p. 2024; Dec. 1, 1934, p. 1708).

The following dosage form has been accepted:

Dilaudid Compounding Tablets ½ Grain: Each tablet contains dilaudid one-half grain. These tablets, each many times the average dose, are for use in compounding only.

RADIOLOGIC SERVICE IN THE UNITED STATES

REPORT BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The names of 1,286 physicians specializing in radiology are included in the fifth publication of the Council's list. Up to the present time this number has been found to qualify according to the "Essentials" prepared by radiologists and passed on by the House of Delegates of the American Medical Association. A number of applications are now pending and new applications are considered as they are submitted.

The type of service rendered is given opposite the name. "Radiology," under "Type of Service," always includes short wave therapy, also known as "deep therapy." The asterisk (*) on "Roentgenology" indicates that short wave therapy is included.

A list of physicians specializing in radiology in government service will be found on page 651.

The work of the Council in designating those qualified in radiology has been wholesome in its effects. Physicians generally have been encouraged to refer their work to medical graduates recognized as specialists in this field. There is abundant evidence that independent lay practitioners have been effectively discouraged through the Council's efforts.

The "Essentials" have been printed in former issues of the Radiologic Number of THE JOURNAL. The exact method of preparing the list may be referred to in THE JOURNAL, March 19, 1932, page 984. Application blanks are secured from the office of the Council.

PHYSICIANS SPECIALIZING IN RADIOLOGY

ALABAMA

NAME	ADDRESS	TYPE OF SERVICE
Anniston		
Levi, Irwin P.	931 Noble St.	Roentgenology
Birmingham		
Barfied-Carter, M.	1929, 1st Ave., N.	Roentgenology
Kesmodel, Karl F.	1023 S. 20th St.	Radiology
Meadows, James A.	1023 S. 20th St.	Radiology
Sorrell, Lewis E.	2501, 16th St.	Roentgenology *
Dothan		
Ellis, John T.	814 S. St. Andrews St.	Roentgenology
Fairfield		
Troje, Oscar R.	Tenn. Coal, Iron & R. R. Co. Employee's Hosp.	Radiology
Mobile		
Gravlee, I. M.	1252 Springhill Ave.	Radiology
Montgomery		
Boswell, F. P.	201 Montgomery St.	Radiology

ARIZONA

NAME	ADDRESS	TYPE OF SERVICE
Phoenix		
Goss, H. L.	125 W. Monroe St.	Roentgenology
Watkins, W. Warner	15 E. Monroe St.	Radiology
Tucson		
Hayden, Edward M.	Desert Sanatorium and Institute of Research	Diagnostic roent.

ARKANSAS

NAME	ADDRESS	TYPE OF SERVICE
Fort Smith		
Brooksher, W. R.	602 Garrison Ave.	Radiology
Hot Springs		
Nims, Chas. H.	236 Central Ave.	Radiology
Little Rock		
Rhinehart, Barton A.	701 Main St.	Roentgenology
Rhinehart, D. A.	701 Main St.	Roentgenology
Zell, A. M.	2000 Main St.	Radiology
Monticello		
Wilson, J. S.		Radiology

CALIFORNIA

NAME	ADDRESS	TYPE OF SERVICE
Alameda		
Lum, Wm. T.	1361 Park St.	Roentgenology *
Bakersfield		
Fox, L. H.	2025, 18th St.	Roentgenology
Berkeley		
Heald, E. Schulze	3000 Regent St.	Roentgenology
Van Nuys, R. G.	2490 Channing Way	Radiology
Eureka		
Woolford, Joseph S.	350 E St.	Roentgenology
Fresno		
McGehee, W. H.	1257 Thorne Ave.	Diagnostic roent.
Millholland, W. G.	1015 Fulton St.	Roentgenology
Ruff, Frank R.	1234 S St.	Radiology
Glendale		
Ghrist, David M.	143 N. Brand Blvd.	Radiology
Jones, L. L.	229 N. Central Ave.	Roentgenology *
Hollywood		
Sherman, Benj. H.	6777 Hollywood Blvd.	Roentgenology
Stewart, Chas. W.	1680 N. Vine St.	Roentgenology
Warren, J. W.	1322 N. Vermont Ave.	Radiology
Long Beach		
Heylmun, H. H.	115 Pine Ave.	Diagnostic roent.
Mayfield, Claude	115 Pine Ave.	Diagnostic roent.
Los Angeles		
Abowitz, Jacob	4833 Fountain Ave.	Roentgenology
Bailey, Cornelius O.	727 W. 7th St.	Radiology
Blaine, Edward S.	727 W. 7th St.	Roentgenology
Bonoff, Karl M.	1930 Wilshire Blvd.	Roentgenology
Capp, Charles S.	938 S. Lake St.	Radiology
Carter, Ray A.	1200 N. State St.	Roentgenology
Costolow, Wm. E.	1407 S. Hope St.	Roentgen therapy Radium therapy
Davis, Kenneth S.	2131 W. 3d St.	Roentgenology *
Goin, Lowell S.	1930 Wilshire Blvd.	Roentgenology
Johnson, Clayton R.	1200 N. State St.	Diagnostic roent.
Karshner, Rolla G.	510 S. Lucas Ave.	Roentgenology
Kibby, Sydney V.	417 S. Hill St.	Roentgenology
Liljedahl, Elmer N.	1241 Shatto St.	Roentgenology *
MacColl, Douglass R.	2007 Wilshire Blvd.	Roentgenology *
Pindell, Merl Lee	678 S. Ferris Ave.	Diagnostic roent.
Snure, Henry	1414 S. Hope St.	Radiology
Soiland, Albert	1407 S. Hope St.	Roentgen therapy Radium therapy
Stafford, Owen R.	520 W. 7th St.	Roentgenology
Taylor, Raymond G.	1212 Shatto St.	Radiology
Witter, Calvin B.	511 S. Bonnie Brae St.	Roentgenology *
Oakland		
Bissell, Frank S.	1624 Franklin St.	Roentgenology
Bowen, Carl B.	1624 Franklin St.	Roentgenology
Jelte, S. A.	230 Grand Ave.	Radiology
Petch, Philip H.	426, 17th St.	Roentgenology
Peters, Chas. E.	400, 29th St.	Roentgenology *
Sargent, Wm. H.	1624 Franklin St.	Roentgenology *
Siefert, Alfred C.	411, 30th St.	Radiology
Palo Alto		
Powers, Robert A.	261 Hamilton Ave.	Roentgenology
Starks, Dorothy J.		Radiology
Pasadena		
Chapman, John Frye	65 N. Madison Ave.	Roentgenology *
Parker, Carl H.	65 N. Madison Ave.	Roentgenology *
Pomona		
Swearingen, F. C.	586 N. Main St.	Radiology
Redlands		
Folkins, F. H.	47 E. Vine St.	Roentgenology
Riverside		
Thuresson, Paul F.	3770, 12th St.	Diagnostic roent.
Sacramento		
Briggs, Rowland S.	1014, 8th St.	Radiology
Cook, Orrin S.	1127, 11th St.	Roentgenology
Graham, Ralph S.	2830 L St.	Roentgenology *
Lawson, John D.	928 Jay St.	Radiology
Zimmerman, Harold	1027, 10th St.	Radiology
San Bernardino		
Owen, C. C.	398, 6th St.	Roentgenology *
San Diego		
Kinney, L. C.	1831, 4th St.	Radiology
Weiskotten, W. O.	233 A St.	Diagnostic roent.
San Francisco		
Bryan, Lloyd	450 Sutter St.	Roentgenology *
Crow, Lloyd B.	1400 Fell St.	Roentgenology *
Donovan, Monica	450 Sutter St.	Roentgenology Radium therapy
Fulmer, Chas. C.	27th and Valencia Sts	Roentgenology
Garland, L. Henry	450 Sutter St.	Roentgenology *
Hunsberger, H. S.	450 Sutter St.	Diagnostic roent.
Ingber, I. S.	490 Post St.	Radiology
Leef, Edward	2361 Clay St.	Radiology
Levitin, Joseph	516 Sutter St.	Radiology
Newell, Robert R.	2361 Clay St.	Radiology
O'Neill, John R.	2200 Hayes St.	Roentgenology
Rehfisch, John M.	450 Sutter St.	Roentgenology *
Rice Frank M.	2000 Van Ness Ave.	Roentgenology *
Rodenbaugh, F. H.	490 Post St.	Radiology
Ruggles, Howard E.	384 Post St.	Roentgenology
Stone, Robert S.	Parnassus and 3d Ave.	Roentgenology *
Williams, A. J.	450 Sutter St.	Radiology
Williams, Francis	870 Market St.	Radiology
San Jose		
Broemser, Milton A.	311 S. 1st St.	Radiology
Bullitt, James B.	241 E. Santa Clara St.	Radiology
Richards, Charles M.	241 E. Santa Clara St.	Radiology

NAME	ADDRESS	TYPE OF SERVICE
San Pedro		
Allen, Albert	410 W. 6th St.	Diagnostic roent.
Santa Barbara		
Clark, Daniel M.	1520 Chapala St.	Diagnostic roent.
Geyman, M. J.	320 W. Pueblo St.	Radiology
Ullmann, H. J.	1520 Chapala St.	Radiology
Ware, James G.	1515 State St.	Roentgenology *
Santa Monica		
Hopkirk, C. C.	710 Wilshire Blvd.	Diagnostic roent.
Stockton		
McGurk, Raymond T.	242 N. Sutter St.	Roentgenology *
Sheldon, F. B.	242 N. Sutter St.	Radiology
COLORADO		
Colorado Springs		
Brown, L. Gordon	707 N. Cascade Ave.	Radiology
Denver		
Allen, K. D. A.	227, 16th St.	Roentgenology *
Bouslog, John S.	227, 16th St.	Radiology
Brandenburg, H. P.	227, 16th St.	Radiology
Childs, S. B.	227, 16th St.	Radiology
Crosby, L. G.	227, 16th St.	Radiology
Diemer, Frederick E.	1616 Tremont Pl.	Diagnostic roent.
Newcomer, Elizabeth.	1616 Tremont Pl.	Roentgenology *
Newcomer, N. B.	1616 Tremont Pl.	Radiology
Schmidt, Ernst A.	4200 E. 9th Ave.	Radiology
Stephenson, F. B.	227, 16th St.	Roentgenology
Wasson, W. W.	227, 16th St.	Radiology
Weeks, Paul R.	227, 16th St.	Roentgenology
Withers, Sanford	1612 Tremont Pl.	Roentgenology Radium therapy
Longmont		
Matlack, J. A.		Diagnostic roent.
Sterling		
Daniel, J. H.		Roentgenology
Woodmen		
Forney, F. A.		Diagnostic roent.
CONNECTICUT		
Bridgeport		
Groark, Owen J.	881 Lafayette St.	Diagnostic roent.
Lockhart, R. Harold.	144 Golden Hill St.	Radiology
Parmelee, B. M.	144 Golden Hill St.	Radiology
Hartford		
Butler, Nicholas G.	50 Farmington Ave.	Roentgenology
Climan, Max	242 Trumbull St.	Diagnostic roent.
Hoffman, Charles C.	700 Main St.	Diagnostic roent.
Ogden, Ralph T.	179 Allyn St.	Radiology
Roberts, Douglas J.	179 Allyn St.	Radiology
Van Strander, W. H.	179 Church St.	Radiology
Meriden		
Otis, Fessendon N.	165 W. Main St.	Roentgenology
Middletown		
Murphy, James	101 Broad St.	Radiology
New Britain		
Grant, Arthur S.	55 W. Main St.	Roentgenology
Loud, Norman W.	92 Grand St.	Diagnostic roent.
New Haven		
Bergman, A. P.	27 Elm St.	Diagnostic roent.
Goldman, George	201 Park St.	Diagnostic roent.
Scott, Clifton R.	215 Whitney Ave.	Roentgenology
Wheatley, Louis F.	420 Temple St.	Roentgenology *
Norwalk		
Perkins, Charles W.	520 West Ave.	Roentgenology *
Waterbury		
Atkins, Samuel M.	111 W. Main St.	Roentgenology *
Harvey, Joseph L.	64 Robbins St.	Roentgenology *
Willimantic		
Kinney, Kenneth K.	29 North St.	Roentgenology
DELAWARE		
Wilmington		
Allen, B. M.	909 Washington St.	Diagnostic roent.
Burns, Ira	912 Jefferson St.	Radiology
McElfatrick, G. C.	1024 W. 8th St.	Diagnostic roent.
DISTRICT OF COLUMBIA		
Washington		
Bierman, M. I.	1801 Eye St., N.W.	Diagnostic roent.
Caylor, C. C.	1029 Vermont Ave., N.W.	Diagnostic roent.
Christie, A. C.	1835 Eye St., N.W.	Radiology
Coe, Fred O.	1835 Eye St., N.W.	Radiology
Eldridge, W. W., Jr.	St. Elizabeths Hosp.	Roentgenology *
Elward, Joseph F.	1726 Eye St., N.W.	Roentgenology
Groover, T. A.	1835 Eye St., N.W.	Radiology
King, Cecil V.	Gallinger Municipal Hosp.	Radiology
Lattman, Isidore	1835 Eye St., N.W.	Radiology
Leibell, Casimir	2d and D Sts., S.E.	Radiology
McPeak, Edgar M.	1835 Eye St., N.W.	Radiology
Merritt, E. A.	1835 Eye St., N.W.	Radiology
Moore, A. B.	1835 Eye St., N.W.	Radiology
Moore, Claude	815 Connecticut Ave.	Roentgenology
Otell, L. S.	1835 Eye St., N.W.	Radiology
Sappington, E. F.	1103, 16th St., N.W.	Roentgenology
FLORIDA		
Fort Lauderdale		
Hendricks, E. M.	314 Sweet Bldg.	Radiology
Jacksonville		
Cunningham, Lester W.	117 W. Duval St.	Roentgenology *
McEuen, H. B.	126 W. Adams St.	Roentgenology *
Shaw, W. McL.	117 W. Duval St.	Roentgenology *
Miami		
Cleghorn, Charles D.	168 S.E. 1st St.	Roentgenology Radium therapy
Lucinian, Joseph H.	168 S.E. 1st St.	Roentgenology *
Pearson, Nelson T.	168 S.E. 1st St.	Roentgenology
Raap, Gerard	168 S.E. 1st St.	Diagnostic roent. Radium therapy
Miami Beach		
Payton, Frazier J.	St. Francis Hospital.	Roentgenology Radium therapy
Ocala		
Moore, J. N.		Diagnostic roent.
Orlando		
Pines, John A.	108 E. Central Ave.	Roentgenology *
Weed, Walter A.	307 S. Orange Ave.	Radiology
St. Petersburg		
Feaster, O. O.	11th St. and 7th Ave., N.	Radiology
Herring, John A.	342, 3d Ave. N.	Diagnostic roent.
Tampa		
Allen, Bundy	706 Franklin St.	Roentgenology *
Brown, Harold O.	215 Madison St.	Roentgenology
Dickinson, J. C.	706 Franklin St.	Roentgenology *
West Palm Beach		
Herpel, Fredk. K.	Good Samaritan Hospital	Diagnostic roent.
GEORGIA		
Americus		
Pendergrass, R. C.		Roentgenology *
Atlanta		
Clark, James J.	478 Peachtree St., N. E.	Roentgenology *
Hall, O. D.	450 East Ave.	Radium therapy
Lake, Wm. F.	384 Peachtree St., N. E.	Roentgenology *
Landham, J. W.	139 Forrest Ave., N. E.	Roentgenology Radium therapy
Rayle, Albert A.	36 N. Butler St.	Roentgenology
Stewart, Calvin B.	904 Peachtree St.	Radium therapy
Augusta		
Holmes, L. P.	753 Broad St.	Roentgenology
Savannah		
Cole, Wm. A.	24 E. Taylor St.	Roentgenology
Corson, Eugene R.	10 W. Jones St.	Roentgenology *
Drane, Robert	Liberty and Drayton Sts.	Roentgenology Radium therapy
McGee, H. H.	346 Bull St.	Roentgenology
Thomasville		
Collins, J. J.		Radiology
IDAHO		
Boise		
Genoway, Charles V.	105 N. 8th St.	Roentgenology *
Lewiston		
Johnson, Paul W.		Roentgenology *
ILLINOIS		
Batavia		
Mostrom, H. T.		Diagnostic roent. Radium therapy
Belvidere		
Alguire, Alden		Diagnostic roent.
Bloomington		
Cantrell, Thomas D.	310 E. Jefferson St.	Radiology
Grote, Henry W.	219 N. Main St.	Radiology
Chicago		
Anspach, Wm. E.	1150 N. State St.	Radiology
Arens, Robt. A.	2839 Ellis Ave.	Radiology
Bauer, August A.	1305 E. 63d St.	Roentgenology
Beilin, David S.	411 Garfield Ave.	Radiology
Blackmarr, Frank H.	25 E. Washington St.	Roentgen therapy Radium therapy
Brams, Julius	55 E. Washington St.	Radiology
Braun, Benjamin D.	25 E. Washington St.	Radiology
Brown, Wm. L.	55 E. Washington St.	Radium therapy
Case, James T.	180 N. Michigan Ave.	Radiology
Challenger, Chester J.	3117 Logan Square	Roentgenology
Cook, Carroll E.	30 N. Michigan Ave.	Radiology
Culpepper, Wm. L.	1180 E. 63d St.	Roentgenology
Cushway, B. C.	7752 S. Halsted St.	Radiology
Cutrera, Peter	501 N. Halsted St.	Diagnostic roent.
Damiani, Joseph	767 Milwaukee Ave.	Roentgenology
Davis, H. E.	180 N. Michigan Ave.	Radiology
Dick, Paul G.	55 E. Washington St.	Roentgenology
Foley, Joseph M.	1439 S. Michigan Ave.	Roentgenology *
Ford, Charles	8017 Luella Ave.	Roentgenology
Gilmore, Wilbur H.	185 N. Wabash Ave.	Roentgenology
Grubbe, Emil H.	6 N. Michigan Ave.	Roentgen therapy
Hartung, Adolph	25 E. Washington St.	Radiology
Herman, Edward R.	6319 S. Halsted St.	Roentgenology *
Hodges, Paul C.	950 E. 59th St.	Radiology
Hubeny, M. J.	25 E. Washington St.	Roentgenology
Jenkinson, David L.	1931 Wilson Ave.	Roentgenology *
Jenkinson, E. L.	1439 S. Michigan Ave.	Radiology
Kaplan, Maurice I.	3837 W. Roosevelt Rd.	Radiology
Kitterman, Peter G.	6319 S. Halsted St.	Roentgenology
Landau, George M.	660 Groveland Park	Roentgenology
Larkin, A. James	180 N. Michigan Ave.	Radium therapy
Ledoux, Alfred C.	950 E. 59th St.	Roentgenology *
Litschgi, Joseph J.	551 Grant Pl.	Roentgenology
Maier, Roe J.	7752 S. Halsted St.	Radiology
McClure, C. F.	25 E. Washington St.	Roentgenology
Olin, Harry A.	6058 Drexel Blvd.	Roentgenology
Orndoff, B. H.	2561 N. Clark St.	Radiology
Potter, Hollis E.	122 S. Michigan Ave.	Roentgenology
Richman, Samuel H.	6205 Ingleside Ave.	Roentgenology *
Rose, Cassie Belle	1753 W. Congress St.	Radiology
Royer, Don J.	841 E. 63d St.	Roentgenology
Simpson, Frank E.	59 E. Madison St.	Radium therapy

NAME	ADDRESS	TYPE OF SERVICE
Teitelbaum, Meyer D.	2839 Ellis Ave.	Radiology
Tichy, L. S.	3200 W. Cermak Rd.	Roentgenology
Trostler, I. S.	25 E. Washington St.	Radiology
Walt, Harold Nathan.	3821 Washington Blvd.	Roentgenology
Wanninger, W. J.	9116 Exchange Ave.	Roentgenology
Warden, R. H.	1044 N. Francisco Ave.	Radiology
Warfield, C. H.	Wood and Harrison Sts.	Roentgenology
Willy, R. G.	2749 W. Foster Ave.	Roentgenology
Danville		
Archibald, James S.	St. Elizabeth Hosp.	Roentgenology
Dunham, L. H.	41 N. Vermilion St.	Radiology
Decatur		
Flinn, Fauntleroy	220 S. Webster St.	Radiology
Deerfield		
Davis, Charles J.		Roentgenology
East St. Louis		
Echternacht, A. C.	234 Collinsville Ave.	Radiology
Evanston		
Conley, Bernard M.	355 Ridge Ave.	Roentgenology
Crowder, Earl R.	2650 Ridge Ave.	Roentgenology *
Perry, Gentz.	636 Church St.	Radiology
Highland Park		
Jacks, R. R.	2 N. Sheridan Rd.	Diagnostic roent.
Jacksonville		
Brouse, Ivan E.	316 W. State St.	Roentgenology *
Joliet		
Houston, Alfred M.	106 N. Chicago St.	Roentgenology
Lincoln		
Hagans, Frank M.	400 Broadway	Radium therapy
Matteon		
Morgan, Chas. E.	213 S. 17th St.	Roentgenology
Mount Carmel		
Elkins, Harold A.		Roentgenology
Mount Vernon		
Smith, Elmer M.	1001½ Broadway	Roentgenology
Oak Park		
Ronayne, Frank J.	518 N. Austin Blvd.	Radiology
Olney		
Weber, James A.		Diagnostic roent. Radium therapy
Ottawa		
Pettit, Roswell T.	728 Columbus St.	Radiology
Peoria		
Decker, Fred H.	410 Main St.	Radiology
Goodwin, P. B.	530 N. Glen Oak Ave.	Radiology
Magee, H. B.	408 Main St.	Radiology
Quincy		
Beirne, H. P.	648 Hampshire St.	Roentgenology Radium therapy
Perley, Arthur E.	508 Maine St.	Radiology
Swanberg, Harold.	508 Maine St.	Radiology
Rockford		
Ackemann, H. W.	321 W. State St.	Radiology
Springfield		
Hilt, Lawrence M.	105 S. 5th St.	Roentgenology *
O'Hara, F. S.	403 E. Capitol Ave.	Radiology

INDIANA

Evansville		
Cleveland, W. R.	22 N. W. 4th St.	Radiology
Meyer, Keith T.	600 Mary St.	Diagnostic roent.
Fort Wayne		
Rodriguez, Juan.	2902 Fairfield Ave.	Radiology
Van Buskirk, E. M.	347 W. Berry St.	Radiology
Frankfort		
Chittick, A. G.	206 E. Walnut St.	Roentgenology
Gary		
Dietrich, Paul H.	540 Tyler St.	Roentgenology
Sagel, Jacob.	1600 W. 6th Ave.	Radiology
Hammond		
Rauschenbach, C. W.	5245 Hohman Ave.	Roentgenology
Indianapolis		
Beeler, Raymond C.	23 E. Ohio St.	Radiology
Collins, James N.	23 E. Ohio St.	Radiology
Lochry, R. L.	Fall Creek Blvd. and Illinois St.	Roentgenology
Smith, Lester A.	23 E. Ohio St.	Radiology
Stayton, Chester A.	23 E. Ohio St.	Roentgenology *
Wright, Cecil S.	1076 W. Michigan St.	Radiology
Kokomo		
Ferry, Paul W.	224 N. Main St.	Diagnostic roent.
LaFayette		
McClelland, D. C.	308 N. 8th St.	Roentgenology *
Sichler, Harper G.	2400 South St.	Roentgenology
Michigan City		
Martin, F. V.	501 Pine St.	Radiology
Muncie		
Moore, P. D.	Jackson and High Sts.	Radiology
New Castle		
Iterman, Geo. E.	1319 Church St.	Roentgenology
Plymouth		
Knott, Harry		Roentgenology
Shelbyville		
Inlow, Herbert H.	18 W. Washington St.	Diagnostic roent.
South Bend		
Fisher, Lawrence F.	105 E. Jefferson Blvd.	Roentgenology *
Terre Haute		
Pierce, H. J.	627 Cherry St.	Radiology
Union City		
Reid, Robert W.		Roentgenology
Valparaiso		
DeWitt, C. H.		Diagnostic roent.
Vincennes		
Moore, Robert G.	21 N. 3d St.	Roentgenology

IOWA

Anamosa		
Rawson, E. G.		Diagnostic roent.
Atlantic		
Greenleaf, W. S.		Roentgenology
Belle Plaine		
Newland, Don H.		Diagnostic roent.
Boone		
Whitaker, B. T.	703, 8th St.	Radiology
Cedar Rapids		
Erskine, Arthur W.	120, 3d Ave., S.E.	Radiology
Clinton		
Knudsen, Hubert K.	639 Bluff Blvd.	Roentgenology *
Lenaghan, Robt. T.	122 Main Ave.	Roentgenology
Council Bluffs		
Hawkins, Emmet L.	420 W. Washington Ave.	Radiology
Des Moines		
Burcham, Thos. A.	410, 6th Ave.	Radiology
Dubuque		
Ericksen, Lester G.	1596 Delhi St.	Roentgenology
Eagle Grove		
Christensen, John R.		Roentgenology
Iowa City		
Gillies, Carl L.	University Hospital	Radiology
Kerr, H. Dabney	University Hospital	Radiology
Rypins, Edwin L.	University Hospital	Radiology
LeMars		
Larsen, W. W.		Roentgenology *
Marshalltown		
Talley, Louis F.	Main St. and 3d Ave.	Roentgenology
Ottumwa		
Spilman, H. A.	103 S. Market St.	Diagnostic roent.
Webb, Harold H.	119 E. Main St.	Roentgenology *
Sioux City		
Gibbon, W. H.	423 Sixth St.	Radiology
Waterloo		
Britt, Otis W.	525 Sycamore St.	Radiology
Kestel, John L.	525 Sycamore St.	Radiology

KANSAS

Beloit		
Vallette, H. B.		Diagnostic roent.
Eldorado		
Dinsmore, W. S.	324 W. Central Ave.	Diagnostic roent.
Fort Scott		
Prichard, J. R.	209 S. Main St.	Radiology
Kansas City		
Allen, Lewis G.	905 N. 7th St.	Radiology
Tice, Galen M.	4158 Eaton St.	Radiology
Lawrence		
Jones, H. T.	107 E. 8th St.	Diagnostic roent.
Salina		
Brittain, O. R.	105 S. 7th St.	Roentgenology
Topeka		
Finney, Guy A.	901 Kansas Ave.	Roentgenology
Floersch, M. A.	700 Kansas Ave.	Roentgenology
Owen, Arthur K.	901 Kansas Ave.	Roentgenology
Wichita		
Frost, E. J.	227 E. Douglas Ave.	Radiology
Swope, Opie W.	105 N. Main St.	Radiology
Webb, J. A. H.	106 N. Main St.	Radiology

KENTUCKY

Ashland		
Cooper, John Ralph.	1540 Winchester Ave.	Roentgenology *
Lexington		
Harding, Donnan B.	190 N. Upper St.	Radiology
Lewis, John C.	159 W. Main St.	Roentgenology
Thompson, J. Campbell	207 N. Upper St.	Roentgenology
Louisville		
Bell, J. C.	332 W. Broadway	Radiology
Enfield, Chas. D.	332 W. Broadway	Radiology
Fugate, I. T.	608 S. 4th St.	Radiology
Herrmann, Henry C.	321 W. Broadway	Radiology
Johnson, Sydney E.	101 W. Chestnut St.	Roentgenology
Keith, D. Y.	412 W. Chestnut St.	Radiology
Keith, J. P.	412 W. Chestnut St.	Radiology
Martin, William C.	321 W. Broadway	Roentgenology
Owensboro		
Gillim, P. D.	415 St. Ann St.	Roentgenology
Shelbyville		
Bayless, B. W.		Roentgenology
Winchester		
Browne, I. H.	31 N. Main St.	Diagnostic roent.

LOUISIANA

NAME	ADDRESS	TYPE OF SERVICE
Alexandria		
Barker, H. O.	327, 3d St.	Roentgenology
Baton Rouge		
Williams, Lester J.	221, 3d St.	Radiology
Houma		
St. Martin, T. I.		Roentgenology
Mansfield		
Curtis, H. P. D.		Roentgenology
Monroe		
Moore, Daniel M.	128 De Siard St.	Roentgenology
New Orleans		
Ané, J. Novell.	921 Canal St.	Roentgenology Radium therapy
Bowie, E. R.	3503 Prytania St.	Radiology
Fortier, L. A.	2000 Tulane Ave.	Radiology
Gately, T. T.	2000 Tulane Ave.	Radiology
Granger, Amédée	210 Baronne St.	Roentgenology
Magruder, L. W.	1327 Pine St.	Radiology
Menville, L. J.	921 Canal St.	Radiology
Rodick, John C.	3500 Prytania St.	Roentgenology *
Samuel, E. C.	3503 Prytania St.	Radiology
Shreveport		
Anderson, Johnson R.	1130 Louisiana Ave.	Roentgenology *
Barrow, S. C.	624 Travis St.	Radiology
Edwards, H. G. F.	624 Travis St.	Radiology
Harwell, W. R.	624 Travis St.	Radiology
Rutledge, C. P.	1030 Highland Ave.	Radiology
Thomas, A. Jerome	624 Travis St.	Roentgenology

MAINE

NAME	ADDRESS	TYPE OF SERVICE
Auburn		
Cunningham, C. H.	66 Goff St.	Diagnostic roent.
Bangor		
Ames, Forrest B.	489 State St.	Roentgenology
Hunt, Barbara	224 State St.	Radiology
Portland		
Cummings, Edson S.	12 Pine St.	Diagnostic roent.
Lamb, Frank W.	131 State St.	Diagnostic roent.
Thaxter, Langdon T.	22 Arsenal St.	Roentgenology
Waterville		
Goodrich, John P.	214 Main St.	Diagnostic roent.
Lubell, Moses F.	Sisters Hospital	Roentgenology

MARYLAND

NAME	ADDRESS	TYPE OF SERVICE
Baltimore		
Ashbury, Howard E.	101 Read St.	Roentgenology *
Burnam, Curtis F.	1418 Eutaw Pl.	Radiology
Evans, John	101 Read St.	Roentgenology
Feldman, Maurice	2425 Eutaw Pl.	Diagnostic roent.
Firor, Whitmer B.	1100 N. Charles St.	Roentgenology *
Hill, Eben C.	3 W. Franklin St.	Roentgenology
Kahn, Max	2 W. Read St.	Roentgenology *
Ostro, Marcus	1810 Eutaw Pl.	Roentgenology
Pierson, J. W.	1107 St. Paul St.	Roentgenology *
Sax, Benjamin J.	2237 Eutaw Pl.	Diagnostic roent.
Walton, Henry J.	104 W. Madison St.	Roentgenology
Waters, Charles A.	1100 N. Charles St.	Roentgenology *
Wright, Harold E.	101 Read St.	Diagnostic roent.
Crisfield		
Collins, C. E.		Roentgenology
Cumberland		
Cowherd, F. G.	122 S. Centre St.	Roentgenology
Easton		
Hammond, William T.		Roentgenology
Frederick		
Derr, John S.	35 E. Church St.	Roentgenology *
Hagerstown		
Hoffmeier, F. N.	King and Antietam Sts.	Roentgenology
Salisbury		
Williams, Jack K.	203 W. Church St.	Roentgenology

MASSACHUSETTS

NAME	ADDRESS	TYPE OF SERVICE
Boston		
Blackett, Chas. W.	35 Bay State Rd.	Roentgenology
Butler, P. F.	35 Bay State Rd.	Radiology
Cleaves, Edwin N.	370 Marlborough St.	Diagnostic roent.
Coffin, W. K.	438 Marlborough St.	Roentgenology
Friedman, Harry F.	270 Commonwealth Ave.	Radiology
George, Arial W.	43 Bay State Rd.	Roentgenology
Hampton, A. O.	Massachusetts General Hosp.	Radiology
Healy, Thomas R.	370 Marlborough St.	Roentgenology *
Holmes, Geo. W.	265 Charles St.	Radiology
Leonard, Ralph D.	43 Bay State Rd.	Roentgenology
Levene, George	82 Concord St.	Roentgenology *
MacMillan, A. S.	483 Beacon St.	Roentgenology
McCarthy, H. L.	479 Beacon St.	Roentgenology
McFee, William D.	41 Bay State Rd.	Roentgenology
Meachen, John W.	475 Commonwealth Ave.	Roentgenology *
Moloney, Albert M.	47 Bay State Rd.	Radiology
Morrison, Sidney L.	370 Marlborough St.	Roentgenology *
O'Brien, Fredk. W.	465 Beacon St.	Radiology
Osgood, Herman A.	144 Commonwealth Ave.	Roentgenology *
Ott, George J.	344 Commonwealth Ave.	Roentgenology
Perkins, Roy S.	520 Commonwealth Ave.	Roentgenology
Ritvo, Max	485 Commonwealth Ave.	Radiology
Robins, Samuel A.	636 Beacon St.	Roentgenology
Sosman, M. C.	721 Huntington Ave.	Roentgenology *
Vance, R. G.	264 Beacon St.	Roentgenology
Vogt, E. C.	300 Longwood Ave.	Roentgenology
Watts, Henry F. R.	6 Monadnock St., Dor.	Diagnostic roent.
Wheatley, Frank E.	520 Beacon St.	Roentgenology
Whelan, Charles	395 Commonwealth Ave.	Radiology
Brockton		
Packard, Loring B.	305 Prospect St.	Roentgenology
Brookline		
Bogan, Isabel K.	193 Aspinwall Ave.	Roentgenology
Dalton		
Sullivan, P. J.		Roentgenology
Fall River		
Tennis, M. N.	538 Prospect St.	Radiology
Fitchburg		
Jennings, Curtis H.	82 Mechanic St.	Roentgenology
Haverhill		
Popoff, Constantine	26 Summer St.	Roentgenology *
Sprouli, John	50 Merrimack St.	Radiology
Holyoke		
Harrington, Elmer J.	199 Chestnut St.	Roentgenology *
Lawrence		
Burgess, Charles J.	37 Whitman St.	Radiology
Leary, Alfred J.	477 Essex St.	Roentgenology Radium therapy
Lowell		
Stewart, Ralph C.	226 Central St.	Roentgenology
Malden		
Warren, Alva H.	82 Beltran St.	Roentgenology
New Bedford		
Bonnar, James M.	90 Hillman St.	Roentgenology
North Adams		
Bunce, James W.	85 Main St.	Roentgenology
Crawford, J. W.	191 E. Main St.	Radiology
Northampton		
Janes, Benjamin F.	211 Elm St.	Roentgenology
Pittsfield		
Cox, Michael J.	74 North St.	Roentgenology *
Quincy		
Altman, Wm. S.	26 Adams St.	Radiology
Salem		
Tivnan, Paul E.	70 Washington St.	Roentgenology
Somerville		
Blake, Allen H.	81 College Ave., W. Som.	Roentgenology
Springfield		
Davis, Ernest L.	20 Maple St.	Roentgenology *
Horrigan, A. J.	20 Maple St.	Roentgenology *
Jackson, Howard L.	146 Chestnut St.	Roentgenology
Powers, Richard T.	25 Maple St.	Radiology
Solomon, Bennett	115 State St.	Roentgenology
Van Allen, Harvey W.	19 Maple St.	Radiology
Webster		
Bragg, Leslie R.	260 Main St.	Diagnostic roent.
Worcester		
Cook, Philip H.	27 Elm St.	Roentgenology Radium therapy
Langill, Morton H.	36 Pleasant St.	Roentgenology

MICHIGAN

NAME	ADDRESS	TYPE OF SERVICE
Adrian		
Chase, A. W.	130 Toledo St.	Diagnostic roent.
Ann Arbor		
Donaldson, Samuel W.	326 N. Ingalls St.	Roentgenology
Hodges, Fred J.	University of Michigan	Roentgenology
Jacox, Haroid W.	1116 Lincoln Ave.	Radiology
Peirce, Carleton B.	1313 E. Ann St.	Radiology
Battle Creek		
Gorsline, C. S.	25 W. Michigan Ave.	Roentgenology
Kolvoord, Theodore	25 W. Michigan Ave.	Roentgenology
Upson, W. O.	North Ave. and Emmett St.	Roentgenology
Bay City		
Ziliak, Alois L.	200 Tuscola Rd.	Roentgenology *
Detroit		
Berris, J. M.	10 Peterboro St.	Diagnostic roent.
Birkelo, Carl C.	28 W. Adams Ave.	Roentgenology
Bloom, Arthur R.	5057 Woodward Ave.	Roentgenology
Chene, George C.	1551 Woodward Ave.	Roentgenology
Dempster, Jas. H.	5761 Stanton Ave.	Diagnostic roent.
Dickson, B. R.	337 W. Grand Blvd.	Roentgen Therapy Radium Therapy
Doub, Howard P.	2799 W. Grand Blvd.	Radiology
Eakins, F. J.	1551 Woodward Ave.	Roentgenology
Eisen, Paul	258 S. Algonquin St.	Roentgen therapy Radium therapy
Evans, Wm. A.	10 Peterboro St.	Radiology
Ford, Frances A.	432 E. Hancock Ave.	Radium therapy
Grace, Joseph M.	14729 St. Marys St.	Radiology
Hall, E. Walter	10 Peterboro St.	Radiology
Hasley, Clyde K.	1551 Woodward Ave.	Radiology
Jarre, Hans A.	1551 Woodward Ave.	Radiology
Kenning, J. C.	1551 Woodward Ave.	Roentgenology
Leucutia, Traian	10 Peterboro St.	Radiology
Minor, Edward G.	3001 W. Grand Blvd.	Roentgenology
Reynolds, Lawrence	10 Peterboro St.	Radiology
Sanderson, S. E.	5057 Woodward Ave.	Radiology
Shore, O. J.	3001 W. Grand Blvd.	Roentgenology
Stevens, Rollin H.	1551 Woodward Ave.	Radiology
Ulbrich, Henry L.	1122 E. Grand Blvd.	Roentgenology *
Weaver, Clarence E.	113 Martin Pl.	Roentgenology
Wilcox, Leslie F.	10 Peterboro St.	Radiology
Witwer, E. R.	3839 Brush St.	Radiology
Flint		
Clift, Myron W.	901 Begole St.	Radiology
Macduff, R. Bruce	112 W. Kearsley St.	Roentgenology *

NAME	ADDRESS	TYPE OF SERVICE
Grand Rapids		
Menees, Thomas O...	Wealthy St. and Plymouth Rd.	Radiology
Moore, Vernor M....	110 E. Fulton St.	Radiology
Muller, John H....	26 Sheldon Ave.	Radiology
Smith, Richard L....	Butterworth Hospital	Diagnostic roent.
Stonehouse, Garnet G.	26 Sheldon Ave. S. E.	Radiology
Williams, Alden H....	26 Sheldon Ave.	Radiology
Jackson		
Cooley, R. M.	524 Lansing Ave.	Roentgenology
Kugler, J. C.	1905 Grovedale Ave.	Roentgenology
Porter, H. W.	1020 E. Michigan Ave.	Radiology
Kalamazoo		
Crane, A. W.	420 S. Rose St.	Roentgenology *
Jackson, John B.	420 S. Rose St.	Roentgenology *
Lansing		
Davenport, Carroll S.	1210 W. Saginaw St.	Roentgenology *
Huntley, Fred M.	908 N. Capitol Ave.	Roentgenology
Monroe		
Moll, T. M.	120 Maple Blvd.	Diagnostic roent.
Muskegon		
Holly, Leland E.	876 N. 2d St.	Radiology
Plainwell		
Hudnutt, O. D.	124 E. Bridge St.	Roentgenology
Pontiac		
Church, J. E.	35 W. Huron St.	Roentgenology
Pool, H. H.	35 W. Huron St.	Roentgenology
Saginaw		
Anderson, Wm. K.	316 S. Porter St.	Diagnostic roent.
St. Johns		
Ho, T. Y.	Clinton Memorial Hosp.	Diagnostic roent.
St. Joseph		
Lanman, Everett L.	1821 Niles Ave.	Roentgenology
Traverse City		
Minor, E. B.	208½ E. Front St.	Diagnostic roent.
Ypsilanti		
Pillsbury, Chas. B.	23B N. Washington St.	Diagnostic roent.

MINNESOTA

Duluth		
Clement, Gage	915 E. 1st St.	Radiology
McNutt, John R.	324 W. Superior St.	Roentgenology
Mankato		
Wentworth, A. J.	Main and Broad Sts.	Radiology
Minneapolis		
Allison, R. G.	74 S. 9th St.	Roentgenology *
Fleming, A. S.	900 Nicollet Ave.	Radium therapy
Harrington, Chas. D.	78 S. 9th St.	Radiology
Nordin, G. T.	74 S. 9th St.	Roentgenology *
Rigler, Leo G.	412 Delaware St., S.E.	Diagnostic roent.
Sundt, Mathias	87 S. 7th St.	Roentgenology
Ude, Walter H.	74 S. 9th St.	Roentgenology *
Rochester		
Bowing, Harry H.	102, 2d Ave., S.W.	Roentgenology Radium therapy
Camp, John D.	Mayo Clinic	Diagnostic roent.
Desjardins, A. U.	Mayo Clinic	Roentgen therapy Radium therapy
Fricke, Robert E.	Mayo Clinic	Radium therapy
Kirklin, B. R.	Mayo Clinic	Diagnostic roent.
Leddy, Eugene T.	Mayo Clinic	Radium therapy
Sutherland, Charles G.	Mayo Clinic	Diagnostic roent.
Weber, Harry M.	Mayo Clinic	Diagnostic roent.
St. Cloud		
Kern, M. J.	St. Cloud Clinic Bldg.	Roentgenology *
St. Paul		
Aurelius, J. R.	350 St. Peter St.	Roentgenology *
Schons, Edward	25 W. 4th St.	Radiology

MISSISSIPPI

Greenville		
Beals, John A.	301 Washington St.	Diagnostic roent.
Gulfport		
Van Ness, Edwin B...	Durham Bldg.	Roentgenology
Houston		
Williams, J. Rice		Roentgenology *
Jackson		
Henderson, W. F.	739 N. State St.	Radiology
Laurel		
McCormick, H. G.	531, 7th St.	Roentgenology
McComb		
Ratcliff, Marion D.	Maryland and 4th Sts.	Diagnostic roent.
Natchez		
Beekman, Marcus	307 Franklin St.	Diagnostic roent.

MISSOURI

Holden		
Thompson, Wm. G.		Radiology
Joplin		
McGaughey, H. D.	607 Main St.	Radiology
Kansas City		
Dann, David S.	306 E. 12th St.	Roentgenology
Deweese, E. R.	904 Grand Ave.	Roentgenology
Donaldson, Clyde O..	1103 Grand Ave.	Radiology
Lockwood, Ira H.	304 E. 12th St.	Radiology
McCandless, O. H.	308 E. 12th St.	Roentgenology
McDermott, J. L.	1103 Grand Ave.	Radiology
Skinner, Edward H..	1103 Grand Ave.	Radiology
Virden, C. E.	1103 Grand Ave.	Radiology
St. Joseph		
McGlothlan, A. B.	824 Edmond St.	Roentgenology *
Ravold, Henry J.	401 N. 6th St.	Radiology
St. Louis		
Allen, Wm. E., Jr.	City Hospital No. 2	Roentgenology
Ernst, Edwin C.	3720 Washington Ave.	Radiology
McCutchen, L. G.	3320 N. Kingshighway	Roentgenology *
Moore, Sherwood	510 S. Kingshighway	Radiology
Mueller, Wilbur K.	607 N. Grand Blvd.	Roentgenology
Peden, Joseph C.	634 N. Grand Blvd.	Roentgenology *
Sante, L. R.	634 N. Grand Blvd.	Radiology
Spinzig, Edgar W.	508 N. Grand Blvd.	Roentgenology
Titterington, P. F.	508 N. Grand Blvd.	Roentgenology
Zink, Oscar C.	5535 Delmar Blvd.	Roentgenology
Springfield		
Cole, Paul F.	200 Pershing Ave.	Radiology

MONTANA

Billings		
Bridenbaugh, J. H.	208 N. Broadway	Radiology
Watkins, C. F.	115 N. 28th St.	Radiology
Great Falls		
Walker, Dora	503, 1st Ave. N.	Roentgenology

NEBRASKA

Beatrice		
Penner, H. G.	113 S. 5th St.	Roentgenology *
Rush, Weaver A.	Medical Arts Bldg.	Radiology
Grand Island		
Woodruff, R. C.	306½ N. Locust St.	Roentgenology
Hastings		
Rork, Lee W.	131 N. Hastings Ave.	Roentgenology *
Lincoln		
Kail, Carl	4410 South St.	Roentgenology *
Rowe, Edward W.	128 N. 13th St.	Radiology
Smith, Roscoe L.	1307 N St.	Radiology
Omaha		
Fouts, Roy W.	107 S. 17th St.	Radiology
Hardy, Clyde C.	101 S. 17th St.	Roentgenology
Harris, T. T.	407 S. 16th St.	Roentgenology
Hunt, Howard B.	36th and Cuming Sts.	Radiology
Kelly, J. F.	107 S. 17th St.	Radiology
McAvin, James S.	42d and Dewey Ave.	Radiology
Overgaard, A. P.	107 S. 17th St.	Roentgenology *
Ross, W. L.	407 S. 16th St.	Roentgenology
Tyler, Albert F.	103 S. 17th St.	Radiology
Scottsbluff		
Plehn, Frank W.	1818 Broadway	Roentgenology

NEVADA

Reno		
Piersall, C. E.	120 N. Virginia St.	Radiology

NEW HAMPSHIRE

Concord		
Eveleth, Fred S.	12 Court St.	Roentgenology
Dover		
Chesley, Harry O.	507 Central Ave.	Roentgenology
Hanover		
Sycamore, Leslie K...	2 Maynard St.	Radiology
Manchester		
Merrill, A. S.	814 Elm St.	Roentgenology
Nashua		
Davis, S. G.	168 Main St.	Roentgenology
Rock, T. F.	77 Main St.	Diagnostic roent.

NEW JERSEY

Asbury Park		
Herrman, William G..	501 Grand Ave.	Radiology
Atlantic City		
Bradley, Robert A.	1616 Pacific Ave.	Radiology
Kaighn, Charles B...	905 Pacific Ave.	Roentgenology
Bayonne		
Larkey, C. J.	700 Avenue C	Diagnostic roent.
Beachwood		
Swan, Guy Howard...		Roentgenology *
Camden		
Roberts, Joseph E.	403 Cooper St.	Roentgenology
East Orange		
May, Ernst A.	157 Harrison St.	Radiology
Reitter, George S.	144 Harrison St.	Radiology
Elizabeth		
Vogel, Herbert A.	1060 E. Jersey St.	Diagnostic roent.
Ward, Leo J.	137 W. Jersey St.	Radiology
Englewood		
Edwards, J. Bennett..	350 Engle St.	Roentgenology *
Flemington		
Tompkins, G. B.		Diagnostic roent.
Hoboken		
Broeser, Henry V.	105 Newark St.	Roentgenology
Jersey City		
Maver, William W...	532 Bergen Ave.	Roentgenology *
Perlberg, Harry J.	921 Bergen Ave.	Roentgenology *
Montclair		
Schimmelpfennig, R. D.	Mountainside Hospital	Roentgenology
Newark		
Baker, Charles F.	198 Clinton Ave.	Roentgenology *
Devlin, Frank	617 Broadway	Radiology
Furst, Nathan James.	190 Johnson Ave.	Roentgenology *
Gelber, Louis J.	41 Lincoln Ave.	Roentgenology
Henle, Carye-Belle...	671 Springfield Ave.	Roentgenology
Hood, Philip G.	19 Lincoln Park	Diagnostic roent.
Marquis, W. James...	198 Clinton Ave.	Roentgenology
Pomeranz, Raphael..	31 Lincoln Park	Roentgenology *
Reissman, Erwin	31 Lincoln Park	Radiology
Wyatt, Joseph H.	135 Clinton Ave.	Radiology

NAME	ADDRESS	TYPE OF SERVICE
New Brunswick		
Avery, Philip S.	Albany and Somerset Sts.	Radiology
Klein, Wm.	85 Bayard St.	Radiology
Passaic		
Terhune, Percy H.	171 Paulison Ave.	Diagnostic roent.
Paterson		
Golding, Harry N.	180 Carroll St.	Roentgenology
Roemer, Jacob	213 Broadway	Radiology
Perth Amboy		
Klein, Edward F.	136 Market St.	Radiology
Plainfield		
Boyes, James G.	744 Watchung Ave.	Roentgenology *
Rochelle Park		
Pallen, C. de S.		Radium therapy
Skillman		
Pigott, Albert W.	New Jersey State Village for Epileptics.	Diagnostic roent.
Succasunna		
Plume, C. A.		Diagnostic roent.
Summit		
Disbrow, G. Ward	193 Morris Ave.	Roentgenology
Tidaback, John D.	382 Springfield Ave.	Roentgenology
Trenton		
Davison, R. Winthrop	205 W. State St.	Radiology
West New York		
Goldstone, Karl H.	16, 18th St.	Radiology
NEW MEXICO		
Albuquerque		
Johns, E. W.	221 W. Central Ave.	Roentgenology
Van Atta, J. R.	221 W. Central Ave.	Radiology
Warden, M. R.	St. Joseph Hospital	Diagnostic roent.
NEW YORK		
Albany		
Cross, Warren G.	New Scotland Ave.	Roentgenology
Howard, W. P.	46 Willett St.	Roentgenology
Murnane, J. J.	New Scotland Ave.	Radiology
Prentice, D. D.	287 State St.	Radiology
Amsterdam		
Wilson, David	156 Guy Park Ave.	Roentgenology
Auburn		
Austin, Sedgwick E.	54 E. Genesee St.	Roentgenology
Bull, Harry S.	11 Williams St.	Diagnostic roent.
Bay Shore		
Cohoon, Carl Wm.	72a S. Clinton Ave.	Roentgenology
Binghamton		
Kann, Ulysses S.	69 Walnut St.	Radiology
Shaw, Perry H.	93 Main St.	Diagnostic roent.
Brooklyn		
Bayles, William H.	1901 Bedford Ave.	Diagnostic roent.
Bell, A. L. Loomis	340 Henry St.	Radiology
Blaser, Homer S.	437 Ovington Ave.	Diagnostic roent.
Cramp, George W.	506, 6th St.	Roentgenology
Currin, Francis W.	1136 Dean St.	Radiology
Dannenberg, Max	1464 Eastern Parkway	Roentgenology
Eastmond, Charles	483 Washington Ave.	Roentgenology *
Ehrenpreis, B.	576 Eastern Parkway	Roentgenology
Elliott, F. E.	122, 76th St.	Radiology
Forbes, Geo.	291 Hancock St.	Roentgenology
Friedman, Asa B.	41 Eastern Parkway	Radiology
Gold, Louis	835 Willoughby Ave.	Diagnostic roent.
Goldfarb, Louis	608 Ocean Ave.	Diagnostic roent.
Goodman, Moses	2100, 66th St.	Radiology
Held, Louis Arthur	255 Eastern Parkway	Roentgenology *
Howes, William E.	152 Clinton St.	Roentgenology
Ingraham, Ruth	121 DeKalb Ave.	Diagnostic roent.
Kaufman, Julius	201 Eastern Parkway	Roentgenology
Krupp, D Dudley	178 Pennsylvania Ave.	Roentgenology *
Levine, Isaac	1219, 49th St.	Diagnostic roent.
Liberson, F.	612 Eastern Parkway	Diagnostic roent.
Masterson, John J.	401, 76th St.	Roentgenology
Mendelson, Emanuel	132 Parkside Ave.	Roentgenology *
Nathanson, Louis	700 Ocean Ave.	Radiology
Rendich, Richard A.	116 Remsen St.	Roentgenology
Schenck, Samuel G.	115 Eastern Parkway	Radiology
Schiff, Charles H.	1000 Park Pl.	Diagnostic roent.
Segall, L. Martin	4701, 15th Ave.	Roentgenology *
Silverstein, I. S.	315 New York Ave.	Roentgenology
Strahl, Milton I.	255 New York Ave.	Diagnostic roent.
Taormina, Louis J.	1093 Gates Ave.	Roentgenology
Teperson, H. I.	744 Eastern Parkway	Radiology
Van Winkle, LeRoy P.	126 Rogers Ave.	Diagnostic roent.
Wasch, Milton G.	871 Park Pl.	Radiology
Weinstein, Samuel	1138 Eastern Pkwy.	Roentgenology *
Westing, Siegfried W.	180 Lenox Rd.	Diagnostic roent.
Buffalo		
Barnes, John M.	875 Lafayette Ave.	Roentgenology
Bayliss, J. W.	472 Delaware Ave.	Roentgenology *
Cotter, Stephen V.	1457 Abbott Rd.	Roentgenology
DeGraff, Ralph M.	131 Linwood Ave.	Diagnostic roent.
Glan-Franceschi, J. S.	610 Niagara St.	Diagnostic roent.
Helminiak, M. J.	929 Fillmore Ave.	Diagnostic roent.
Koenig, Edward C.	100 High St.	Roentgenology *
Lape, C. Pearley	183 Oxford Ave.	Diagnostic roent.
Levy, Sidney H.	33 Allen St.	Diagnostic roent.
Levyn, Lester	40 North St.	Roentgenology
Mattick, Walter L.	113 High St.	Radiology
Moses, Chester D.	333 Linwood Ave.	Diagnostic roent.
Orr, Clifford R.	1093 Ellicott St.	Roentgenology *
Schreiner, B. F.	113 High St.	Radiology
Smith, B. B.	333 Linwood Ave.	Roentgenology
Thompson, A. W.	135 Linwood Ave.	Diagnostic roent.
Cooperstown		
Cruttenden, Harry L.		Radiology
McCoy, Charles C.		Roentgenology *
Cortland		
Sornberger, Frank F.	16 Church St.	Roentgenology
Elmhurst		
Startz, Irving S.	40-16 Gleane St.	Roentgenology *
Elmira		
Bennett, John A.	222 W. Church St.	Roentgenology
Endicott		
Ford, G. R.	600 High St.	Roentgenology *
Far Rockaway		
Lesoff, Morris J.	856 Central Ave.	Roentgenology *
Rivkin, Hyman	918 Cornaga Ave.	Roentgenology *
Glens Falls		
Birdsall, Edgar	140 Glen St.	Roentgenology
Gloversville		
Denham, H. C.	12 Prospect Ave.	Roentgenology
Hempstead		
Robin, Nathaniel H.	131 Fulton Ave.	Roentgenology
Williams, P. A.	131 Fulton Ave.	Roentgenology *
Hudson		
Harris, Rosslyn P.	427 Warren St.	Diagnostic roent.
Ithaca		
Larkin, Leo P.	114 N. Tioga St.	Radiology
Mechanicsville		
Green, Geo. A.		Diagnostic roent.
Middletown		
Schmitz, Walter A.	18 Highland Ave.	Roentgenology
Walton, James W.	60 Prospect Ave.	Roentgenology
Mount Kisco		
Vaughan, F. E.		Diagnostic roent.
Newburgh		
Miller, Raymond A.	212 Grand St.	Diagnostic roent.
Reed, Charles B.	205 Liberty St.	Roentgenology
New Rochelle		
Chilko, Alexander J.	41 Halcyon Terrace	Roentgenology *
Duckworth, Willard D.	421 Huguenot St.	Roentgenology *
New York City		
Abbott, Hodson A.	622 W. 168th St.	Roentgenology
Abraham, Adolph	829 Park Ave.	Radiology
Arons, Isidore	667 Madison Ave.	Roentgen therapy Radium therapy
Baum, S. M.	136 E. 64th St.	Roentgen therapy Radium therapy
Bendick, Arthur J.	2 E. 77th St.	Radiology
Bernstein, J. H.	106 E. 85th St.	Radiology
Besser, Herman	114 E. 54th St.	Roentgenology
Boone, Wm. H.	428 W. 59th St.	Roentgenology *
Bower, Jacob	133 E. 58th St.	Roentgenology
Busby, Archibald H.	133 E. 71st St.	Diagnostic roent.
Cameron, William H.	511 Fifth Ave.	Radium therapy
Carty, John R.	525 E. 68th St.	Roentgenology
Cole, Lewis Gregory	36 E. 61st St.	Roentgenology *
Dieffenbach, W. H.	50 Central Park West	Radiology
Dixon, Geo. S.	1150, 5th Ave.	Diagnostic roent.
Duffy, James J.	424 Park Ave.	Roentgen therapy Radium therapy
Ehrlich, David Ernest	27 W. 86th St.	Radiology
Fairchild, C. W.	11 E. 48th St.	Diagnostic roent.
Ferguson, A. B.	420 E. 59th St.	Roentgenology
Fierstein, Jacob	1018 E. 163d St.	Roentgenology *
Fineman, Solomon	133 E. 58th St.	Diagnostic roent.
Fox, Elsie	384 E. 149th St.	Roentgenology
Francis, William J.	121 Madison Ave.	Roentgenology
Freid, Jacob R.	1049 Park Ave.	Radiology
Fried, Herman	320 W. 87th St.	Roentgenology *
Friedland, Henry	2021 Grand Concourse	Diagnostic roent.
Friedman, Lewis J.	315 E. 18th St.	Roentgenology
Friedman, Max	1940 Grand Concourse	Diagnostic roent.
Friedman, Milton	309 W. 103d St.	Roentgen therapy Radium therapy
Friedmann, Joseph	53 W. 73d St.	Radiology
Froehlich, Eugene	28 W. 74th St.	Roentgenology
Glassman, I.	138 E. 36th St.	Diagnostic roent.
Goldberg, N. J.	460 E. 138th St.	Diagnostic roent.
Golden, Ross	622 W. 168th St.	Roentgenology
Gottlieb, Charles	210 W. 79th St.	Roentgenology
Groeschel, L. B.	911 Park Ave.	Radiology
Harris, Wm.	70 E. 77th St.	Roentgen therapy Radium therapy
Herendeen, Ralph E.	30 E. 40th St.	Roentgenology *
Hirsch, Henry	2488 Grand Concourse	Radiology
Hirsch, I. Seth	136 E. 64th St.	Radiology
Horvath, Rudolph J.	1085 Park Ave.	Diagnostic roent.
Howard, J. Campbell	40 E. 61st St.	Roentgenology *
Huber, Frank	30 E. 40th St.	Roentgenology *
Illick, H. Earl	111 E. 76th St.	Roentgenology
Imboden, Harry M.	30 W. 59th St.	Radiology
Jaches, Leopoid	100 E. 94th St.	Radiology
Jacobs, Alexander W.	40 W. 72d St.	Roentgen therapy Radium therapy
Johnson, Redford K.	30 E. 40th St.	Diagnostic roent.
Kaplan, Ira I.	55 E. 86th St.	Roentgen therapy Radium therapy
Kaplan, Morris	130 Henry St.	Diagnostic roent.
Kasabach, Haig H.	622 W. 168th St.	Radiology
Kassow, Israel O.	1840 Grand Concourse	Diagnostic roent.
Kean, Albert	100 E. 94th St.	Radiology
Klein, Isadore	100 Central Park South	Radiology
Kraft, Ernest	97 Central Park, West	Roentgenology *
Kurz, Bernard	1235 Grand Concourse	Diagnostic roent.
Landsman, I. J.	391 E. 149th St.	Diagnostic roent.
Lapman, Charles	2754 Grand Concourse	Diagnostic roent.
Law, Frederick M.	140 E. 54th St.	Diagnostic roent.
Lefrak, Louis	251 E. Broadway	Diagnostic roent.
Lenz, Maurice	180 Ft. Washington Ave.	Roentgen therapy Radium therapy
Levin, Isaac	57 W. 57th St.	Radiology
Lewis, Raymond W.	115 E. 61st St.	Diagnostic roent.
Massaro, Alfonso F.	457 W. 163d St.	Diagnostic roent.
Merrill, E. Forrest	30 W. 59th St.	Roentgenology *
Meyer, William Henry	303 E. 20th St.	Roentgenology *
Ossip, Abraham	152 Henry St.	Diagnostic roent.

NAME	ADDRESS	TYPE OF SERVICE
Ourian, Adom K.	175 Lexington Ave.	Roentgenology
Philips, Herman B.	9 W. 68th St.	Radiology
Pomeranz, Maurice M.	911 Park Ave.	Radiology
Posner, Herman Paul.	1749 Grand Concourse	Diagnostic roent.
Powell, C. B.	2368, 7th Ave.	Diagnostic roent.
Quimby, A. Judson	5 E. 57th St.	Roentgenology
Radding, Moses B.	24 W. 74th St.	Roentgenology *
Remer, John	200 W. 59th St.	Roentgenology *
Richman, Samuel	1049 Park Ave.	Radiology
Robinson, G. Allen	40 E. 61st St.	Radium therapy
Robinson, William T.	322 W. 72d St.	Roentgenology
Ryan, E. J.	421 W. 113th St.	Roentgenology
Schechter, Samuel	315 W. 86th St.	Diagnostic roent.
Scholz, Thomas	38 E. 85th St.	Diagnostic roent.
Schroeder, Max J.	319 E. 6th St.	Diagnostic roent.
Schwartz, C. W.	33 E. 68th St.	Roentgenology
Schwartz, Irving	1150, 5th Ave.	Diagnostic roent.
Sinberg, Samuel E.	114 E. 54th St.	Roentgenology
Sittenfield, M. J.	29 W. 74th St.	Roentgen therapy Radium therapy
Snow, Wm.	941 Park Ave.	Roentgenology
Spillman, Ramsay	115 E. 61st St.	Diagnostic roent.
Steiner, Joseph M.	170 East End Ave.	Roentgenology *
Stevens, J. Thompson.	745, 5th Ave.	Roentgen therapy Radium therapy
Stewart, Wm. H.	107 E. 76th St.	Roentgenology
Sussman, Marcy L.	166 E. 96th St.	Diagnostic roent.
Swenson, Paul C.	622 W. 168th St.	Diagnostic roent.
Taylor, Henry K.	333 West End Ave.	Diagnostic roent.
Unger, Arthur S.	135 E. 74th St.	Roentgenology
Weinberg, Tobias B.	310 E. 15th St.	Roentgenology
Weiss, Leopold D.	36 W. 59th St.	Roentgenology
Weitzner, Imre	1015 Lexington Ave.	Radiology
Weitzner, Samuel F.	1882 Grand Concourse	Radiology
White, Stephen	57 W. 57th St.	Roentgenology
Wood, Francis C.	421 W. 113th St.	Roentgen therapy Radium therapy
Niagara Falls		
Scott, Walter Roger.	598 Pine Ave.	Radiology
Ossining		
Wyser, Dorean D.	304 Spring St.	Roentgenology
Oswego		
Wallace, H. M.	140 W. 5th St.	Roentgenology
Peekskill		
Snowden, Fred A.	108 Depew St.	Roentgenology
Port Chester		
West, Theodore	324 Westchester Ave.	Radiology
Poughkeepsie		
Davison, Chester O.	Lincoln Ave. and Reade Pl.	Radiology
Richmond Hill		
Voltz, Albert L.	115-20 Myrtle Ave.	Radiology
Rochester		
Almy, Max A.	16 N. Goodman St.	Roentgenology
Davidson, Sol C.	277 Alexander St.	Radiology
Flynn, James M.	277 Alexander St.	Radiology
Fray, Walter W.	260 Crittenden Blvd.	Roentgenology *
Green, Joseph H	277 Alexander St.	Roentgenology
Hansen, Cyrus Owen.	260 Crittenden Blvd.	Radiology
Lingeman, Leslie R.	335 Rugby Ave.	Roentgenology *
Sanders, L. J.	213 Alexander St.	Roentgenology
Thomas, Camp C.	476 Lake Ave.	Roentgenology
Warren, Stafford L.	250 Crittenden Blvd.	Radiology
St. Albans		
Debbie, Anthony G.	114-36, 176th St.	Diagnostic roent.
Saratoga Springs		
King, Earl H.	75 Caroline St.	Roentgenology
Schenectady		
Crouch, A. N.	1103 Glenwood Blvd.	Diagnostic roent.
Syracuse		
Caliva, Salvatore	510 Prospect Ave.	Diagnostic roent.
Childs, Donald S.	713 E. Genesee St.	Roentgenology *
Hadley, Lee A.	713 E. Genesee St.	Roentgenology
Henry, Lucas S.	116 E. Castle St.	Roentgenology
Lavine, Reuben	601 S. Warren St.	Roentgenology
Potter, Carlton F.	820 S. Crouse Ave.	Roentgenology
Rulison, Foster C.	713 E. Genesee St.	Roentgenology
Utica		
Hall, Robert C.	258 Genesee St.	Roentgenology
Powers, M. T.	250 Genesee St.	Roentgenology
Valhalla		
Morris, William E.	Grasslands Hospital	Roentgenology *
Watertown		
Pawling, Jesse R.	100 Stone St.	Roentgenology Radium therapy
Sickels, T. N.	120 Stone St.	Radiology
White Plains		
Duckworth, R. D.	170 Maple Ave.	Roentgenology
Sherman, Herbert	99 Church St.	Roentgenology
Woodhaven		
Knapp, John C.	8525, 86th St.	Radiology

NORTH CAROLINA

Asheville		
MacRae, J. Donald	346 Montford Ave.	Radiology
Murphy, G. W.	20 Battery Park Ave.	Roentgenology *
Charlotte		
Lafferty, Robert H.	127 W. 7th St.	Radiology
Phillips, Clyde C.	127 W. 7th St.	Radiology
Durham		
Reeves, R. J.	Duke Hospital	Radiology
Smith, Wm. L.	Watts Hospital	Radiology
Goldsboro		
Ivey, H. B.	139 W. Walnut St.	Roentgenology Radium therapy
Greensboro		
Rhudy, Booker E.	101 N. Elm St.	Roentgenology
Shohan, Joseph	122 S. Green St.	Roentgenology *
Raleigh		
Noble, Robert P.	131 W. Hargett St.	Roentgenology *
Rocky Mount		
Fleming, Major I.	104 S. Franklin St.	Roentgenology
Spencer		
Sigman, F. G.	600, 4th St.	Roentgenology *
Statesville		
McElwee, R. S.	Stearns Bldg.	Roentgenology
Washington		
Kluttz, DeWitt	Tayloe Hospital	Roentgenology
Winston-Salem		
Rousseau, J. P.	310 W. 4th St.	Radiology

NORTH DAKOTA

Bismarck		
Berg, H. Milton	221, 5th St.	Roentgenology *
Fargo		
Rothnem, Thos. Peter.	807 Broadway	Roentgenology
Minot		
Gates, Russell	20, 4th Ave. S.W.	Roentgenology *

OHIO

Akron		
Selby, John Hunter	159 S. Main St.	Roentgenology
Stall, A. H.	525 E. Market St.	Radiology
Stewart, J. E.	159 S. Main St.	Roentgenology
Voke, Edward L.	256 W. Cedar St.	Roentgenology
Ashtabula		
Collander, P. J.	217 Park Pl.	Roentgenology
Canton		
Hendrickson, Anna R.	115 Dewalt Ave., N.W.	Roentgenology *
Peters, Chester M.	300 McKinley Ave., N.W.	Radiology
Shorb, John E.	411, 3d St., N.W.	Roentgenology *
Chillicothe		
Holmes, Ralph W.	Chillicothe Hospital	Roentgenology
Cincinnati		
Bader, E. R.	628 Elm St.	Radiology
Brodberger, Wm. L.	Madison Rd. and East Hill Ave.	Roentgenology
Brown, Samuel	707 Race St.	Roentgenology *
Dillard, Charles E.	514 Clark St.	Roentgenology
Doughty, Wm. M.	628 Elm St.	Radiology
Goosmann, Charles	22 W. 7th St.	Radiology
Koehler, C. W.	19 Garfield Place	Radiology
Lange, Sidney	19 Garfield Place	Radiology
McCarthy, Justin E.	707 Race St.	Roentgenology
Reineke, Harold G.	Burnet Ave. and Goodman St.	Roentgenology *
Warne, B. M.	19 Garfield Place	Roentgenology
Cleveland		
Bettelheim, Frederick.	1020 Huron Rd.	Radiology
Farmer, H. L.	10515 Carnegie Ave.	Radiology
Freedman, Edward F.	25 Prospect Ave., N.W.	Roentgenology
Freedman, Eugene	Lakeside Hospital	Roentgenology *
Hauser, Harry	3395 Scranton Rd.	Radiology
Hill, Walter C.	10515 Carnegie Ave.	Radiology
LeFevre, Walter I.	9400 Euclid Ave.	Roentgenology
Mahrer, H. A.	10515 Carnegie Ave.	Roentgenology *
May, Raymond V.	10515 Carnegie Ave.	Radiology
May, Robert J.	10515 Carnegie Ave.	Radiology
McNamee, Edgar P.	1422 Euclid Ave.	Diagnostic roent.
Nichols, B. H.	2020 E. 93d St.	Radiology
Osmond, John D.	10515 Carnegie Ave.	Radiology
Portmann, U. V.	2045 E. 90th St.	Roentgen therapy Radium therapy
Steel, David	7911 Detroit Ave.	Roentgenology
Thomas, M. A.	10515 Carnegie Ave.	Radiology
West, James H.	10515 Carnegie Ave.	Radiology
Yoelson, I. E.	2064 E. 9th St.	Roentgenology
Columbus		
Bowen, Chas. F.	332 E. State St.	Radiology
Fulton, Huston F.	327 E. State St.	Roentgenology *
Harris, Herman L.	273 State St.	Roentgenology
Kirkendall, Ben R.	137 E. State St.	Roentgen therapy Radium therapy
Means, Hugh J.	683 E. Broad St.	Radiology
Miller, W. H.	328 E. State St.	Radiology
Reinert, Edward	247 E. State St.	Radiology
Riebel, Frank A.	15 W. Goodale St.	Roentgenology
Sims, Geo. P.	793 W. State St.	Radiology
Weirauk, H. V.	9 Buttles Ave.	Roentgenology
Dayton		
Burnett, Harry W.	201 S. Main St.	Radiology
Delscamp, W. H.	201 S. Main St.	Roentgenology
Jones, Lynn M.	117 S. Main St.	Roentgenology *
Price, Rudolph J.	201 S. Main St.	Radiology
Fremont		
Philo, D. W.	209 W. State St.	Roentgenology
Gallipolis		
Wilson, Milo		Radiology
Hamilton		
Benzing, George, Jr.	R.D. 3	Radiology
Lakewood		
McDowell, John R.	15701 Detroit Ave.	Roentgenology
Shetter, North W.	14600 Detroit Ave.	Roentgenology
Lima		
Thomas, Herbert A.	131 N. Elizabeth St.	Radiology
Massillon		
Holston, J. D.	876 Amherst Rd., N.E.	Diagnostic roent.
Piqua		
Spencer, Robert D.	400 N. Main St.	Roentgenology
Salem		
Heck, Stanton	1160 E. State St.	Roentgenology
Sandusky		
Hill, Lyle S.	526 Columbus Ave.	Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Springfield		
Brubaker, E. R.	8 W. Main St.	Radiology
Ultes, Will	E. High St. and Burnett Rd.	Roentgenology *
Steubenville		
Miller, J. E.	401 Market St.	Radiology
Toledo		
Goodrich, Murray E.	Sta. C, Box 74a	Roentgenology *
Kahn, Dalton	237 Michigan St.	Roentgenology
Murphy, John T.	421 Michigan St.	Radiology
Warren		
Gauchat, Paul C.	197 W. Market St.	Roentgenology
Simpson, D. G.	775 Mahoning Ave., N.W.	Roentgenology
Wauseon		
Maddox, Wm. H.	120 Depot St.	Roentgenology
Youngstown		
Bachman, M. H.	314 N. Phelps St.	Roentgenology *
Baker, Edgar C.	Youngstown Hospital	Radiology
Heberding, John	151 W. Rayen Ave.	Roentgenology
Heeley, J. A.	275 W. Federal St.	Roentgenology
Meyer, N. N.	23 Central Square	Diagnostic roent.
Tamarkin, Saul J.	1026 Belmont Ave.	Roentgenology *
Zanesville		
Holston, J. G. F.	620 South St.	Roentgenology
Loebell, Maurice A.	531 Market St.	Roentgenology *

OKLAHOMA

Marlow		
Talley, C. N.		Diagnostic roent.
McAlester		
Johnston, James C.	216½ E. Choctaw Ave.	Roentgenology
Oklahoma City		
Heatley, John E.	119 N. Broadway	Diagnostic roent.
Myers, Ralph Emerson	1200 N. Walker St.	Radiology
Roland, Marion M.	119 N. Broadway	Radiology
Okmulgee		
Ming, Charles M.	220 S. Morton Ave.	Roentgenology
Shawnee		
Hughes, J. E.	14 E. 9th St.	Diagnostic roent. Radium therapy
Sulphur		
Annadown, P. V.		Diagnostic roent.
Tulsa		
Larrabee, W. S.	108 W. 6th St.	Roentgenology
Lhevine, Morris B.	108 W. 6th St.	Diagnostic roent.
Stuart, Leon H.	108 W. 6th St.	Roentgenology

OREGON

Eugene		
Barnett, Arthur F.	130 E. Broadway	Roentgenology
Portland		
Butler, Frank E.	1020 S.W. Taylor St.	Roentgenology
Haworth, Wallace	193, 11th St.	Roentgenology
Palmer, Dorwin L.	1130 Morrison St.	Radiology
Rees, Sherman E.	2014 N. W. Glisan St.	Roentgenology *
Wight, Otis B.	833 S. W. 11th Ave.	Radium therapy
Woolley, Ivan M.	1020 S.W. Taylor St.	Roentgenology *

PENNSYLVANIA

Allentown		
Smyth, Thos. L.	111 N. 8th St.	Radiology
Troxell, Wm. C.	941 Hamilton St.	Radiology
Altoona		
Alleman, George E.	1121, 13th Ave.	Roentgenology
Bliss, Gerald D.	1220, 13th Ave.	Radiology
Ashland		
Mulligan, P. B.		Roentgenology
Bethlehem		
Leibert, H. F.	Creek Road, R. D. 4	Roentgenology
Bryn Mawr		
Bromer, Ralph S.	Bryn Mawr Hospital	Roentgenology
Chester		
Egbert, Walter E.	601 E. 13th St.	Roentgenology *
Sharpe, A. Maxwell	708 Sproul St.	Roentgenology *
Clearfield		
Reiley, W. E.		Radiology
Coatesville		
Perkins, J. A.	367 Chestnut St.	Diagnostic roent.
Conshohocken		
Burvill-Holmes, E.		Diagnostic roent.
Danville		
Hawley, S. J.		Roentgenology *
DuBois		
Gann, G. W.	49 E. Long Ave.	Roentgenology
McCormick, A. F.	Maple Avenue Hospital	Roentgenology
Easton		
Parry, Leo D.	32 N. 3d St.	Radiology
Quiney, James J.	309 Bushkill St.	Radiology
Erie		
Putts, B. Swayne	117 W. 8th St.	Radiology
Greensburg		
McMurray, H. A.	107 S. Main St.	Roentgenology
Hanover		
Bortner, C. E.	123 York St.	Diagnostic roent.
Harrisburg		
Ritzman, A. Z.	234 State St.	Roentgenology *
Hatboro		
Shoemaker, Robt., III.		Roentgenology
Hazleton		
Dessen, Louis A.	4 W. Broad St.	Roentgenology
Huntingdon		
Kelchline, John M.		Radiology
Johnstown		
Scharmann, Frank G.	218 Franklin St.	Diagnostic roent.
Stewart, H. M.	406 Main St.	Radiology
Lancaster		
Davis, Henry B.	530 N. Lime St.	Roentgenology Radium therapy
Snoke, Paul O.	129 College Ave.	Radiology
Swab, Robert D.	23 E. Walnut St.	Roentgenology
Lebanon		
Boger, John D.	341 Cumberland St.	Diagnostic roent.
Lewistown		
Weaver, O. M.	12 S. Main St.	Roentgenology
Lock Haven		
Green, Geo. D.		Roentgenology
Mahanoy City		
Kapo, Peter J.	211 W. Center St.	Radiology
McKeesport		
Snedden, A. R.	522 Walnut St.	Roentgenology
Meadville		
Gingold, Joseph R.	476 Pine St.	Roentgenology
Mount Lebanon		
McCullough, Thos. L.	431 Beverly Rd.	Roentgenology
New Castle		
Cooper, J. R.	111 E. North St.	Radiology
New Kensington		
Brown, Prentiss A.	901, 5th Ave.	Roentgenology
Norristown		
Campbell, Raymond F.	514 Swede St.	Diagnostic roent.
Old Forge		
Corcoran, Wm. J.	512 Main St.	Roentgenology *
Perkasie		
Strouse, O. H.		Roentgenology
Philadelphia		
Alexander, F. K.	8835 Germantown Ave.	Radiology
Barker, Walter C.	N. E. Cor. Chestnut and 20th Sts.	Radiology
Bertin, Elmer J.	54th St. and Cedar Ave.	Roentgenology
Bird, G. C.	1415 W. Erie Ave.	Roentgenology
Bishop, Paul A.	8th and Spruce Sts.	Radiology
Borzell, Francis F.	4940 Penn St.	Roentgenology
Bowen, David R.	8th and Spruce Sts.	Radiology
Bruck, Samuel	2104 Pine St.	Roentgenology
Carpenter, Samuel A.	2265 N. 16th St.	Roentgenology
Chamberlain, W. E.	3401 N. Broad St.	Radiology
Downs, E. E.	Jeanes Hospital	Radiology
Edelken, Louis	1832 Spruce St.	Radiology
Evans, Harry D.	1120 N. 63d St.	Roentgenology *
Farrell, John T., Jr.	235 S. 15th St.	Roentgenology *
Feldstein, Sidney L.	1601 Walnut St.	Roentgenology
Frank, Jacob W.	1730 Spruce St.	Roentgenology *
Gershon-Cohen, J.	255 S. 17th St.	Roentgenology
Henry, Robert W.	768 S. 15th St.	Roentgenology
Hutton, Frederick C.	1409 N. 15th St.	Roentgenology *
Koenig, Carl F.	1734 Harrison St.	Roentgenology
Kornblum, Karl	1818 Lombard St.	Radiology
Manges, Willis F.	235 S. 15th St.	Roentgenology *
Merchant, Albert K.	3401 N. Broad St.	Roentgenology *
Newcomet, W. S.	3501 Baring St.	Radiology
O'Boyle, Cyril P.	4930 Walnut St.	Roentgenology *
Ostrum, H. W.	1729 Pine St.	Radiology
Pancoast, Henry K.	3400 Spruce St.	Radiology
Pendergrass, Eugene P.	3400 Spruce St.	Radiology
Percival, M. F.	Broad and Wolf Sts.	Radiology
Pfahler, George E.	1930 Chestnut St.	Radiology
Post, Joseph W.	1930 Chestnut St.	Roentgenology
Rieger, Chas. L. W.	230 N. Broad St.	Roentgenology *
Rosenbaum, George	1521 Spruce St.	Radiology
Schmidt, Wm. Henry	1601 Walnut St.	Radiology
Sender, Arthur C.	1311 W. Allegheny Ave.	Roentgenology
Solis-Cohen, Leon	1923 Spruce St.	Roentgenology
Spackman, E. W.	1824 Chestnut St.	Radiology
Stecher, Wm. R.	250 S. 18th St.	Radiology
Stull, H. Tuttle	3260 N. Broad St.	Roentgenology
Sturr, Robert P.	1823 Spruce St.	Roentgenology Radium therapy
Vastine, Jacob H.	1930 Chestnut St.	Radiology
Widmann, B. P.	250 S. 18th St.	Radiology
Wiley, Louis R.	1512 N. 15th St.	Roentgenology
Zulick, J. Donald	2008 Walnut St.	Roentgenology
Philipsburg		
Benson, Andrew L.		Roentgenology
Pittsburgh		
Alley, Reuben G.	4800 Friendship Ave.	Diagnostic roent.
Caldwell, C. S.	520 S. Aiken Ave.	Diagnostic roent.
Fisher, J. W.	500 Penn Ave.	Radiology
Goldsmith, Maurice F.	3459 Fifth Ave.	Roentgenology *
Gorfinkell, Julius	3401, 5th Ave.	Roentgenology
Grier, G. W.	500 Penn Ave.	Radiology
Grimm, Homer W.	500 Penn Ave.	Radiology
Johnston, Zoe A.	500 Penn Ave.	Roentgenology
Langer, Heinz	4800 Friendship Ave.	Roentgen therapy
McCullough, John F.	500 Penn Ave.	Radiology
Ray, William B.	110 E. Stockton Ave.	Roentgenology *
Robinson, Ralph V.	500 Penn Ave.	Radiology
Schaefer, Charles N.	500 Penn Ave.	Radiology
Schumacher, F. L.	500 Penn Ave.	Roentgenology
Sterrett, William J.	110 Stockton Ave.	Roentgenology *
Reading		
Meter, Edward G.	230 N. 5th St.	Roentgenology *
Travis, Richard C.	230 N. 5th St.	Roentgenology Radium therapy
Rochester		
McCaskey, F. H.		Roentgenology
Scranton		
Jackson, Byron H.	327 N. Washington Ave.	Radiology
Milkman, Louis A.	327 N. Washington Ave.	Roentgenology *
von Poswik, Gisela	217 Jefferson Ave.	Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Shippensburg		
Stewart, Alexander...	.....	Roentgenology
Tamaqua		
Hinkel, William H....	243 E. Broad St.....	Roentgenology
Trucksville		
Howell, G. L.....	48 Main St.....	Roentgenology
Uniontown		
Hess, George H.....	104 Morgantown St.....	Roentgenology
Upper Darby		
Clagett, A. H.....	Long Lane Ct. Apt.....	Roentgenology
West Chester		
Pennell, Howard Y....	Chester County Hospital...	Roentgenology
Wilkes-Barre		
DesJardins, A.....	N. River and Auburn Sts...	Roentgenology *
Rogers, Lewis L.....	38 N. Franklin St.....	Roentgenology
Wilkinsburg		
McAdams, Edward C..	9040 Frankstown Rd.....	Roentgenology
McGregor, William J..	312 Penn Ave.....	Roentgenology
Williamsport		
Wurster, L. E.....	416 Pine St.....	Roentgenology
York		
Bennett, John H.....	1253 W. Market St.....	Radiology
Landes, L. S.....	454 W. Market St.....	Diagnostic roent.
Lutz, J. Fletcher....	141 E. Market St.....	Roentgenology

RHODE ISLAND

Pawtucket		
Unger, Oscar M.....	109 Broadway.....	Diagnostic roent.
Providence		
Albert, Simon.....	126 Waterman St.....	Roentgenology *
Batchelder, Philip...	188 Waterman St.....	Roentgenology
Benjamin, Emanuel W.	485 Broadway.....	Radiology
Boyd, James F.....	195 Angell St.....	Radiology
Gerber, Isaac.....	126 Waterman St.....	Radiology
Kelley, Jacob S.....	153 Smith St.....	Diagnostic roent.
McNally, D. Raymond	256 Olney St.....	Roentgenology
West Warwick		
Farrell, John T.....	Brookfield Hills.....	Diagnostic roent.
Woonsocket		
Garrison, Norman S...	38 Hamlet Ave.....	Radiology

SOUTH CAROLINA

Anderson		
Wrenn, Frank.....	620 N. Fant St.....	Radiology
Charleston		
Rudisill, Hillyer, Jr...	Lucas and Calhoun Sts....	Radiology
Taft, Robert B.....	105 Rutledge Ave.....	Radiology
Columbia		
Pitts, Thomas A.....	1515 Marion St.....	Radiology
Rodgers, Floyd D.....	1417 Hampton St.....	Radiology
Florence		
Hay, Percy D., Jr....	111 W. Cheves St.....	Radiology
Greenville		
Judy, W. S.....	107 E. North St.....	Radiology
Spartanburg		
Sheridan, William M..	120 W. Main St.....	Radiology
Walker, Howard M...	120 W. Main St.....	Roentgenology *

SOUTH DAKOTA

Pierre		
McLaurin, A. A.....	.....	Roentgenology
Sioux Falls		
Nessa, Nelius J.....	301 S. Minnesota Ave.....	Roentgenology
Watertown		
Koren, F.....	Broadway and Kemp Ave...	Roentgenology *

TENNESSEE

Chattanooga		
Bogart, F. B.....	544 McCallie Ave.....	Roentgenology
Frere, John Marsh...	707 Walnut St.....	Roentgenology *
Marchbanks, S. S.....	546 McCallie Ave.....	Radiology
Johnson City		
Hankins, John L.....	920 W. Maple St.....	Roentgenology
Knoxville		
Abercrombie, Eugene.	603 W. Main Ave.....	Roentgenology
McCampbell, H. H....	614 Walnut St.....	Radiology
Reaves, Hugh G.....	601 Walnut St.....	Roentgenology *
Memphis		
Bethea, W. R.....	899 Madison Ave.....	Roentgenology *
Coley, Steve W.....	1265 Union Ave.....	Roentgenology *
Heacock, Charles H...	20 S. Dunlap St.....	Radiology
Herring, J. H.....	915 Madison Ave.....	Roentgenology
King, J. Cash.....	915 Madison Ave.....	Roentgenology
Lawrence, W. S.....	248 Madison Ave.....	Radiology
Paine, Robert.....	248 Madison Ave.....	Radiology
Robinson, W. W.....	1291 Union Ave.....	Roentgenology
Murfreesboro		
Overall, J. Clyde....	.....	Roentgenology
Nashville		
McClure, C. C.....	706 Church St.....	Radiology
Shoulders, H. S.....	706 Church St.....	Roentgenology

TEXAS

Amarillo		
Van Sweringen, Walter.	301 Polk St.....	Roentgenology
Vaughan, John H.....	724 Polk St.....	Radiology
Beaumont		
Barr, Richard E.....	388 Pearl St.....	Radiology
Ledbetter, L. H.....	388 Pearl St.....	Radiology
White, C. M.....	595 Orleans St.....	Roentgenology
Corpus Christi		
Crain, Carroll F.....	416 Chaparral St.....	Radiology
Corsicana		
Curtis, Richard C....	409 W. 6th Ave.....	Roentgenology
Dallas		
Beaver, N. B.....	1719 Pacific Ave.....	Radiology
Martin, Charles L....	3301 Junius St.....	Radiology
Martin, J. M.....	3301 Junius St.....	Radiology
Spangler, Davis.....	4105 Live Oak St.....	Radiology
Eastland		
Caton, J. H.....	.....	Roentgenology
El Paso		
Cathcart, J. W.....	114 Mills St.....	Radiology
Mason, C. H.....	114 Mills St.....	Radiology
York, M. N.....	303 Texas St.....	Roentgenology
Fort Worth		
Bond, Tom B.....	600 W. 10th St.....	Radiology
Hyde, X. R.....	600 W. 10th St.....	Radiology
Jagoda, S.....	1212 W. Lancaster St.....	Radiology
O'Bannon, R. P.....	1028, 5th Ave.....	Radiology
Galveston		
Johnson, Jesse B.....	2201 Avenue D.....	Radiology
Houston		
Durrance, Fred Y....	1215 Walker Ave.....	Roentgenology
Harris, C. P.....	1625 Main St.....	Roentgenology *
McDeed, W. G.....	1215 Walker Ave.....	Roentgenology *
McHenry, R. K.....	1215 Walker Ave.....	Roentgenology
Lubbock		
Smith, Jerome H.....	1301 Broadway.....	Roentgenology Radium therapy
Mineral Wells		
Yeager, Robt. L.....	.....	Roentgenology
San Antonio		
Barron, Wm. Marshall	705 E. Houston St.....	Roentgenology *
Hamilton, W. S.....	705 E. Houston St.....	Diagnostic roent.
Ostendorf, W. A.....	507½ E. Houston St.....	Roentgenology
Sherman		
Henschen, G. E.....	500 N. Highland Ave.....	Roentgenology *
Temple		
Giles, Roy G.....	Scott and White Clinic....	Roentgenology *
Powell, Eugene V.....	304 S. 22d St.....	Radiology
Wilson, R. T.....	Scott and White Clinic....	Roentgenology *
Waco		
Jenkins, I. Warner...	425 Austin Ave.....	Radiology
Wichita Falls		
Wilcox, Clark A.....	1300, 8th St.....	Roentgenology *

UTAH

Salt Lake City		
Coray, Q. B.....	50 E. South Temple St....	Roentgenology
Kerby, James P.....	9 Exchange Pl.....	Roentgenology *

VERMONT

Burlington		
Caldwell, Nathan R...	266 Main St.....	Roentgenology *
Robinson, Carl F.....	266 Main St.....	Roentgenology
Wilson, S. A.....	135 College St.....	Roentgenology *
Rutland		
Cook, Benjamin F....	46 Nichols St.....	Diagnostic roent.

VIRGINIA

Harrisonburg		
Canter, Noland M....	.....	Roentgenology
Lynchburg		
Spencer, Hunter B....	Allied Arts Bldg.....	Radiology
Newport News		
Davis, R. A.....	Buxton Clinic	Roentgenology
Norfolk		
Eley, Clayton W.....	Wood and Church Sts.....	Roentgenology *
Hunter, James W. Jr.	142 W. York St.....	Radiology
Petersburg		
Barker, W. Allen....	30 Franklin St.....	Radiology
Clarkson, Wright.....	30 Franklin St.....	Radiology
Richmond		
Flanagan, E. Latane..	116 E. Franklin St.....	Roentgenology
Hodges, Fred M.....	1000 W. Franklin St.....	Radiology
Mandeville, Frederick B.	1201 E. Broad St.....	Roentgenology *
Snead, Lawrence O...	1000 W. Franklin St.....	Radiology
Tabb, J. Lloyd.....	118 E. Franklin St.....	Roentgenology *
Talley, Daniel D., Jr.	501 E. Franklin St.....	Roentgenology *
Whitehead, L. J.....	501 E. Franklin St.....	Roentgenology *
Roanoke		
Armentrout, John F...	30½ Franklin Rd.....	Radiology
McKinney, Joseph T..	30½ Franklin Rd.....	Roentgenology *
Peterson, C. H.....	30½ Franklin Rd.....	Roentgenology *
University		
Archer, Vincent W....	.....	Roentgenology *

WASHINGTON

Bellingham		
Cilley, Earl T. L.....	1155 State St.....	Radiology
Exner, Frederick B...	1210 Jersey St.....	Radiology
Hoquiam		
McCarty, E. D.....	.....	Roentgenology
Longview		
Hayes, Richard.....	Columbia Clinic	Roentgenology
Seattle		
Bourns, Frank S.....	509 Olive St.....	Radiology
Dwyer, Maurice F....	1115 Terry Ave.....	Radiology
Garhart, Manch N....	1305, 4th Ave.....	Radiology
Holtz, Kenneth J.....	920, 2d Ave.....	Roentgenology
Koenig, Carl E.....	509 Olive St.....	Roentgenology
Nichols, H. E.....	1215, 4th Ave.....	Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Snively, J. Howard...	509 Olive St.....	Roentgenology *
Stephens, Lorenzo L..	1215, 4th Ave.....	Radiology
Thompson, H. B.....	1305, 4th Ave.....	Radiology
Thomson, Curtis H....	1305, 4th Ave.....	Roentgenology *
Ward, Chas. B.....	803 Summit Ave.....	Radiology
Spokane		
Aspray, J. Melvin....	407 Riverside Ave.....	Radiology
Betts, Arthur.....	407 Riverside Ave.....	Radiology
Tacoma		
Fishel, C. R.....	740 St. Helens Ave.....	Roentgenology
Walla Walla		
Johannesson, C. J.....	1 W. Main St.....	Roentgenology *
Yakima		
Cornett, Geo. W.....	321 E. Yakima Ave.....	Roentgenology *

WEST VIRGINIA

Charleston		
Lambert, A. C.....	240 Capitol St.....	Roentgenology
Fairmont		
Francis, Charles T....	200 Gaston Ave.....	Roentgenology
Hollidays-Cove		
Davis, Geo. H.....	.....	Diagnostic roent.
Huntington		
MacKenzie, A. R.....	953, 4th Ave.....	Roentgenology *
Parkersburg		
Boice, Ralph Homer..	717 Ann St.....	Roentgenology
Rose, Lonzo O.....	510½ Market St.....	Radiology
Wheeling		
Bippus, E. S.....	77, 16th St.....	Roentgenology
Clovis, C. H.....	2000 Eoff St.....	Radiology
Halslip, Norvell L....	40, 4th St.....	Radiology
Kalbfleisch, W. K.....	58, 16th St.....	Roentgenology
Quimby, Will A.....	1401 Market St.....	Radiology

WISCONSIN

Appleton		
McGrath, E. F.....	114 W. College Ave.....	Radiology
Beloit		
Wilson, Russell F....	431 Olympian Blvd.....	Radiology
Eau Claire		
Baird, J. C.....	401 S. Barstow St.....	Roentgenology
Green Bay		
Olmsted, Austin O....	205 E. Walnut St.....	Radiology
Shewalter, G. M....	305 E. Walnut St.....	Roentgenology
Troup, R. L.....	306 Cherry St.....	Roentgenology
Janesville		
Kuegle, F. H.....	19 S. Main St.....	Roentgenology
Kenosha		
Bowing, Irwin E.....	625, 57th St.....	Roentgenology
Sokow, Theodore.....	723, 58th St.....	Radiology
LaCrosse		
McLoone, J. E.....	319 Main St.....	Roentgenology
Madison		
Ellis, Ivan G.....	720 S. Brooks St.....	Roentgenology
Littig, Lawrence V...	925 Mound St.....	Roentgenology
Pohle, E. A.....	1300 University Ave.....	Radiology
Sisk, J. Newton.....	16 S. Henry St.....	Roentgenology Radium therapy
Marshfield		
Potter, R. P.....	.....	Roentgenology
Milwaukee		
Altenhofen, A. R.....	152 W. Wisconsin Ave.....	Roentgenology
Dorr, A. M.....	161 W. Wisconsin St.....	Roentgenology *
Epperson, Paul S.....	324 E. Wisconsin Ave.....	Roentgenology
Habbe, John Edwin...	231 W. Wisconsin Ave.....	Roentgenology
Mackoy, F. W.....	Sacred Heart Sanitarium..	Diagnostic roent.
Morton, S. A.....	3321 N. Maryland Ave....	Roentgenology
Podlasky, Harry B...	425 E. Wisconsin Ave.....	Roentgenology
Zmyslony, W. P.....	931 W. Mitchell St.....	Diagnostic roent.
Neenah		
Greenwood, S. D.....	.....	Radiology
Salem		
Fletcher, Wm.....	.....	Roentgenology
Superior		
Saunders, Geo.....	1507 Tower Ave.....	Roentgenology
Waukesha		
Peterson, Geo. E.....	821 N. Grand Ave.....	Roentgenology

WYOMING

Cheyenne		
Conyers, Chester A...	1720 Carey Ave.....	Radiology

PHYSICIANS SPECIALIZING IN RADIOLOGY IN GOVERNMENT SERVICE

UNITED STATES ARMY

NAME	ADDRESS	TYPE OF SERVICE
Bowen, Albert, Maj....	Station Hosp., San Antonio, Texas.....	Roentgenology
Carroll, Wm. J., Maj...	Sternberg Gen. Hosp., Manila, P. I.	Roentgenology *
Favour, R., Jr., Maj....	Army and Navy Gen. Hosp., Hot Springs, Ark.....	Roentgenology
Grady, Henry W., Maj..	Fitzsimons Gen. Hosp., Denver, Colo.....	Roentgenology *
Kellogg, D. S., Capt....	Station Hosp., Schofield Barracks, Hawaii	Roentgenology *
Lowry, R. H., Jr., Maj.	Station Hosp., Fort Sam Houston, Tex...	Roentgenology
McCaw, Wm. W., Maj..	Army Med. School, Army Medical Center, Washington, D. C.....	Roentgenology *
Moore, H. C., Maj.....	Hdqts. 9th Corps Area, Presidio of San Francisco, San Francisco, Calif.....	Roentgenology
Moore, John J.....	Letterman Gen. Hosp., San Francisco, Calif....	Roentgenology *

UNITED STATES NAVY

Farrior, John B., Lt. Comdr.....	U.S.S. Ramapo, Bremerton, Wash.....	Roentgenology
Fort, Walter A., Lt. Comdr.....	U. S. Naval Hospital, Mare Island, Calif.....	Roentgenology *
Hayworth, R. W., Lt. Comdr.....	U. S. Naval Hospital, Washington, D. C.....	Roentgenology *
Hutchinson, R. W., Lt. Comdr.....	U. S. Naval Disp., Coco Solo, Canal Zone...	Roentgenology
Jacobs, Irving W., Comdr.	U. S. Naval Hospital, Brooklyn, N. Y.....	Roentgenology *
Keener, Harry A., Lt. Comdr.....	U. S. Naval Hospital, Mare Island, Calif.....	Diagnostic roent.
Larson, Gilbert H., Lt. Comdr.....	U. S. Naval Hospital, Philadelphia, Pa.....	Roentgenology *
Maher, Paul P., Lt. Comdr.....	U. S. Naval Hospital, Pearl Harbor, Hawaii...	Roentgenology *
Muller, F. W., Lt. Comdr.....	U. S. N. Medical Supply Depot, Brooklyn, N. Y...	Roentgenology *
Noble, Harry J., Lt. Comdr.....	U. S. Naval Hospital, Chelsea, Mass.....	Roentgenology *
Owen, John P., Comdr	U. S. Naval Medical Supply Depot, Brooklyn, N. Y.....	Roentgenology
Perry, Wendell H., Lt. Comdr.....	U.S.S. Chicago, New York City.....	Roentgenology
Pinner, Wm. E., Lt.	U. S. Naval Hospital, Bremerton, Wash.....	Roentgenology
Raison, T. W., Capt.	Naval Medical Supply Depot, Mare Island, Calif..	Radiology
Spalding, Otis B., Lt. Comdr.....	U. S. Naval Hospital, San Diego, Calif.....	Roentgenology *
Stowe, Irving E., Lt. Comdr.....	U. S. Naval Hospital, Portsmouth, N. H.....	Roentgenology *
Whitehead, Ely L., Lt. Comdr.....	U. S. Naval Hospital, Canacao, P. I.....	Roentgenology *
Whitmore, Wm. H., Lt. Comdr.....	Norfolk Naval Hospital, Portsmouth, Va.....	Roentgenology

UNITED STATES PUBLIC HEALTH SERVICE

Booth, J. H. R.....	U. S. Marine Hospital, Baltimore, Md.....	Roentgenology *
Mayoral, Antonio.....	U. S. Marine Hospital, New Orleans, La.....	Roentgenology

VETERANS ADMINISTRATION

Beaudet, E. A.....	Livermore, Calif.....	Diagnostic roent.
Frank, C. Harold.....	Milwaukee, Wis.....	Diagnostic roent.
Glickman, L. Grant.....	Milwaukee, Wis.....	Roentgenology *
Griswold, Charles M....	Danville, Ill.....	Diagnostic roent.
Hynes, Wm. P.....	2650 Wisconsin Ave., N. W., Washington, D. C.....	Diagnostic roent.
McClanahan, C. W.....	West Los Angeles, Calif...	Radiology
Minehart, V. L.....	130 W. Kingsbridge Rd., New York City.....	Radiology
Moxness, B. A.....	Northampton, Mass.....	Roentgenology
Murray, R. S. E.....	Lyons, N. J.....	Roentgenology *
Nather, Frederick B....	Fort Harrison, Mont.....	Diagnostic roent.
Shawhan, Rezin C.....	Oteen, N. C.....	Diagnostic roent.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 23, 1935

HOUSE OF DELEGATES ADOPTS POLICIES ON SICKNESS CARE

The special session of the House of Delegates called at the request of the Board of Trustees met in Chicago, February 15 and 16. As will be apparent from the minutes of the House, to be published in THE JOURNAL next week, the session opened with a statement by the Board of Trustees, giving the record of the Association in relationship to this subject and propounding to the House of Delegates six questions of moment. After much general discussion, the speaker of the House of Delegates referred the entire discussion on these six questions to a reference committee, which then brought in a report to the House. This report was unanimously adopted by the House after suitable correction and amendment. It is important that every member of the American Medical Association read carefully this statement of policies and support it to the utmost with his patients and with representatives in state legislatures and in the federal government. The report of the reference committee opens with a preamble stating in general the point of view of the American Medical Association and its right to speak for the medical profession on this subject:

The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and established on truly democratic principles, and that this House of Delegates, as constituted, is the only body truly representative of the medical profession.

The House of Delegates commends the Board of Trustees and the officers of the Association for their efforts in presenting correctly, maintaining and promoting the policies and principles heretofore established by this body.

The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness, the advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to which the American medical profession has fulfilled its obligations.

The first question propounded by the Board of Trustees to the House of Delegates was "Shall or shall not the American Medical Association reaffirm its opposition to compulsory sickness insurance?" The House of Delegates replied to this question in no uncertain terms. It said:

The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance whether administered by the federal government, the governments of the individual states or any individual industry, community or similar body. It reaffirms also its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.

The medical profession has given of its utmost to the American people, not only in this but in every previous emergency. It has never required compulsion but has always volunteered its service in anticipation of their need.

The second question propounded was based on the fact that the Committee on Economic Security, appointed by President Roosevelt, in its report to Congress on January 17 had stated tentatively eleven principles which it believes fundamental to its plan of compulsory health insurance and which apparently would form the basis of the further report on this subject to be a part of the message sent to Congress by the President on March 1:

The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven principles which that committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate, reliable and safe medical service established by the medical profession through years of experience in medical practice are found by the committee to be essential to its own plans.

However, so many inconsistencies and incompatibilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.

The Wagner bill for economic security has been discussed in previous issues of THE JOURNAL. It is an act which provides for unemployment insurance and old age pensions. It also provides federal subsidies to the individual states and additional funds for maternal and child welfare, for the care of the crippled and for the United States Public Health Service. In making the bill effective, it provides for setting up a social insurance board in the Department of Labor. The House of Delegates of the American Medical Association recognized that its primary concern must be with those aspects of the measure concerned in the field of medicine and the public health. It recognized, however, that the original drafts of the Wagner bill indicated that sickness insurance also would be placed under the social service board already mentioned. Therefore the House of Delegates said:

The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate

medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplores and protests those sections of the Wagner bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes.

The House of Delegates condemns as pernicious that section of the Wagner bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training.

Recognizing the fact that the individual states are immediately concerned with the bill for sickness insurance now being proposed by the American Association for Social Security, the House of Delegates voiced its strong condemnation of this measure. In a brief statement THE JOURNAL called attention a few weeks ago to many of the features of this legislation which place it utterly beyond any kind of consideration from a medical point of view. The House of Delegates said:

The so-called Epstein bill, proposed by the American Association for Social Security, now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure. An analysis of this proposed law has been published by the American Medical Association. It introduces such hazardous principles as multiple taxation, inordinate costs, extravagant administration and an inevitable trend toward social and financial bankruptcy.

Throughout the country there seems to be some demand for presentation by the American Medical Association of a plan whereby county medical societies and the medical profession generally may be able to arrange with the public for a better distribution of medical service. More than ten years ago the House of Delegates recognized the desirability of such plans and authorized county medical societies, with the approval of state medical organizations, to put into effect various schemes for enabling the public, particularly in the lower income levels, to obtain adequate medical service at costs that were within their means. At the special meeting of the House of Delegates, several of these plans were brought specifically to the attention of those present. The reference committee gave careful consideration to all these plans and also to an account of some 150 plans already in operation which have been analyzed by the Bureau of Medical Economics. After this consideration, the reference committee reported:

The committee has studied this matter from a broad standpoint, considering many plans submitted by the Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure-all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical education requirements. They must not destroy that initiative which is vital to the highest type of medical service.

In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, instalment purchase or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministration of the physician on the other.

Your reference committee suggests that the Board of Trustees request the Bureau of Medical Economics to study further the plans now existing and such as may develop, with special reference to the way in which they meet the needs of their communities, to the costs of operation, to the quality of service rendered, the effects of such service on the medical profession, the applicability to rural, village, urban and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.

The importance of this special session of the House of Delegates cannot be overemphasized. It represents clearly the point of view of the medical profession as announced through its delegates elected on a truly democratic principle. Physicians who wish to preserve to the medical profession the right to say how medicine shall be practiced, their initiative in diagnosis, treatment and investigation of disease, and the intimate personal relationship that must exist between doctor and patient for the best results, will place behind these policies all the individual support they are able to muster.

THE STEROLS OF BLOOD PLASMA

Sterol, it is now generally assumed, is excreted in human feces mainly in the form of coprosterol. This is accompanied by smaller quantities of dihydrocholesterol (beta-cholestanol) and cholesterol.[1] In recent years, Schönheimer and his co-workers have confirmed the early observation of Boehm that the dihydrocholesterol is excreted by the wall of the large intestine. The coprosterol of the feces is assumed to be produced by bacterial reduction of cholesterol in the intestine. Furthermore, it has been definitely established that both dihydrocholesterol and coprosterol, when administered orally, are not absorbed from the intestine. Still another sterol, allocholesterol, an isomer of cholesterol, has been considered of importance in sterol metabolism. The significance attached to this compound arises from the fact that the latter yields coprosterol when subjected to catalytic reduction in vitro. Furthermore, allocholesterol has been reported as the only sterol other than cholesterol that produces a significant increase in bile acid production when fed to experimental animals. However, in view of the fact that this sterol is not known to occur in nature, the evidence for its importance may merely be fortuitous.

1. An extensive review of the physiology of the sterols is given by Bills, C. F.: Physiol. Rev. **15**: 1 (Jan.) 1935.

In view of the rôles that have been suggested for these various sterols in the metabolism of this class of compounds, it is surprising to find that only cholesterol has been definitely identified in body fluids. However, the similarity in properties of the substances of the sterol group makes a chemical separation and identification of other individual members a difficult problem. Schönheimer's group has evolved a method for the estimation of dihydrocholesterol in the presence of cholesterol and has applied this procedure to establish the occurrence of the former substance as a contaminant of gallstone cholesterol.

Investigators in London [2] have recently reported a preliminary investigation of the sterols of plasma, in which an attempt was made to obtain evidence for the presence of sterols, in addition to cholesterol, that appear to be of metabolic significance. With cholesterol obtained from human blood, a meticulous search was made for dihydrocholesterol and for allocholesterol. The results were negative; however, the authors were led to believe that the methods employed, particularly that for the identification of dihydrocholesterol, are inadequate when applied to the examination of small quantities of material. It is likely that a reinvestigation of the chemical nature of the sterols of blood plasma, with the employment of larger amounts of blood sterol, may yield valuable information to augment the rapidly accumulating chemical and physiologic evidence of the metabolic importance of this class of lipids.

REFERRED PAIN FROM THE STOMACH

Studies of visceral and referred pain progress slowly. The factors involved are such that research demands painstaking effort and lacks the dramatic quality of some other types of medical investigation. Only occasionally do long and objective observations produce such satisfying results as those of Capps.[1] Perhaps for these reasons the study of referred pain does not occupy the important position in clinical medicine to which it is entitled.

Bolton,[2] whose long interest in the subject warrants special attention, has recently discussed this question in relation to the stomach. Since it has become possible to localize the majority of gastric and duodenal ulcers with the roentgen rays, he points out, and to palpate them during the screen examination, less has been heard of referred pain than before. The radiographer, however, employs a considerable pressure, far different from that used by the clinician when testing the abdominal wall for tenderness by lightly palpating it against the elastic resistance of the abdominal contents. The presence of painful and tender areas of the abdominal wall has been previously determined. The first and most important objective of his investigations was to determine definitely the relation of the positions of these tender areas to the positions of the ulcers as seen by the roentgen rays. The series investigated comprised twenty-five cases of gastric ulcer, thirteen of duodenal ulcer, and thirteen of painful gastric neurosis. Roentgenograms had been made of all the patients, and the ulcers had been displayed on the films. All the ulcers were said to be tender to deep pressure. In the cases of neurosis, the stomach was proved to be normal by roentgenograms and was free from tenderness to deep pressure.

The superficial tender areas were first determined by light palpation and marked on the surface of the skin in the upright and supine positions. In every instance these two positions were exactly the same. A glass screen made especially for this purpose was placed on the front of the body, and the outline of the costal margin, the position of the umbilicus and the tender areas were marked on it with a colored pencil. Roentgenograms were then taken of the stomach in the supine and erect positions immediately after a barium meal had been given, so that the stomach was full. The umbilicus was marked with a piece of metal and the ulcer, which was found to be tender on screening, was shown in each position of the patient in relation to the midline and the umbilicus. The films were then placed under the glass screen so that the shadow of the umbilicus on the film and the central line of the spine corresponded with the same positions that had been marked on the glass screen, and the positions in which the ulcer was seen were then marked on the glass screens. The distances of the ulcer from the midline and above or below the umbilicus in the supine and erect positions were measured in centimeters.

For the patients with gastric ulcers the tender areas as determined by light palpation, with two exceptions, were situated in the central sterno-umbilical line. In each case the area involved had a diameter of about 2.5 cm. Regardless of exact location, the points were constant in position whether the patient was erect or supine. The tenderness might be relieved or increased by contraction of the recti. In the erect position the abdomen may bulge out and increase the length of the sterno-umbilical line, but the tender point in such cases always occupied the same relative position in the line by measurement.

In eleven of the thirteen cases of duodenal ulcer, the tender areas were situated in the central sterno-umbilical line. In four the tenderness was situated in the middle of this line, in four in the upper part below the xiphoid process, in two in the upper and middle positions, and in one the whole central line was tender, the maximum point being in the upper part. The area at the ninth right costal cartilage was tender in three of the eleven and it alone was involved in two cases.

Certain types of functional disturbance of the stomach give rise to pain indistinguishable in all particulars

2. Gardner, J. A., and Gainsborough, Hugh: Biochem. J. **28**: 1635 (No. 5) 1934.

1. Capps, J. A.: An Experimental and Clinical Study of Pain in the Pleura, Pericardium and Peritoneum, New York, Macmillan Company, 1933.

2. Bolton, Charles: Observations in Referred Pain, Brain **57**: 211 (Oct.) 1934.

from that of an ulcer. In this group of thirteen cases the roentgenographer reported that there was no ulcer or tenderness in any part of the stomach or duodenum. All, however, showed tender areas in the anterior abdominal wall in exactly similar positions to those described in the cases of ulcer and indistinguishable from them. They are thus situated in similar well defined areas, which are constant in occurrence, are fixed and immobile, and are associated with the same type of pain although the actual source of gastric irritation is different. The tender areas thus refer to the segment of the stomach irrespective of the nature of the irritant upsetting its mechanism. They are independent of any change of position of the patient and have no relation whatever to the position of the stomach. They have, therefore, the characters of referred pain and tenderness due to abnormal impulses originating in the viscus, which are conveyed to the spinal cord by its afferent sympathetic nerves, and their positions are determined by the distribution of these muscular and cutaneous nerves in the body wall, which enter the same segment of the cord as receive the afferent sympathetic fibers from the stomach.

The resulting certainty that in conditions of gastric irritation true visceral referred pain appears does not exclude, Bolton emphasizes, the probable occurrence of splanchnic pain of a different type as defined by Head, and it is certain that the tenderness obtained by the roentgenologist by heavy palpation of the ulcer also demands further investigation.

VIOSTEROL PREPARATIONS AND GALLSTONES

The widespread clinical administration of viosterol preparations has raised problems concerning several possible late effects and side actions. Among these questions is that of the formation of gallstones. Since calcium is concerned in their formation, an increase in the calcium content of the bile might predispose to gallstones. This problem is perhaps particularly acute in pregnancy, in which the incidence of gallstones is already high.

Jones and Laing [1] have recently undertaken to ascertain whether the current use of viosterol preparations might lead to an increased output of calcium in the bile in dogs. Twenty-five dogs were used in their experiments. The gallbladder was removed and the common duct or cystic duct cannulated and the flow into the cannula brought externally and collected. The dogs were kept on a standard diet with the addition of viosterol. Two concentrations were used: either the viosterol in oil, a preparation containing not less than 9,000 units (U. S. P. X, Revised, 1934) of vitamin D or a special preparation, not commercially available, 100 times as potent as the former.

One hundred and ninety-three analyses of bile calcium before the administration of a viosterol preparation were made and seventy-three after the daily administration of from 5 to 10 cc. of viosterol in oil, which is a dose from four to eight times larger than that ordinarily recommended as the maximum therapeutic dose for man. The data obtained were treated statistically and it was found that the mean value of normal bile calcium was 13.64 ± 0.14 mg. per hundred cubic centimeters, with a standard deviation of 2.90 ± 0.10. After the administration of viosterol the mean was 14.44 ± 0.13, with a standard deviation of 2.57 ± 0.09. The difference, then, calculated between the lower limit of mean after administration of the viosterol preparation and the upper limit before was only 0.53 mg. per hundred cubic centimeters of bile—an essentially negligible factor. The blood calcium and bile output were not essentially modified in the experiments.

The Northwestern investigators also gave 1 cc. of the special preparation before mentioned to three dogs intravenously for three or four days in succession. After this the blood calcium and bile calcium contents were increased and the output of bile was definitely decreased. It was therefore evident that doses of viosterol preparations considerably larger than would ordinarily be used in clinical practice do not raise the bile calcium concentration or modify bile output in the dog. Doses of viosterol preparations large enough to increase definitely the blood calcium level will increase the bile calcium concentration and decrease the output of bile.

Clinical confirmation of these interesting experimental conclusions is desirable. Jones and Laing hoped to obtain this confirmation on patients with chronic biliary fistulas but had not yet been able to do this. When and if confirmation is obtained, one more possible danger of viosterol administration will be eliminated.

Current Comment

THE AUTOMOBILE AND DIABETES MELLITUS

The improved high speed highways in the United States are constantly becoming more hazardous to life and limb. This is especially emphasized once a year when the total fatalities from automobile accidents are published. The shock from the ever increasing number of deaths then subsides and the slaughter of human beings goes on. Perhaps additional emphasis can be brought to bear when it is understood that the death rate from automobile accidents is now equal to that of diabetes, a disease the incidence of which has also been on the increase, even though it has been some fourteen years since Banting and his associates discovered a therapeutic preparation that would control its manifestations. The death rate in the registration area of the United States from automobile accidents in 1932 and the death rate from diabetes mellitus were the same, 21.9 per hundred thousand of population. This figure does not include deaths that followed collisions of auto-

1. Jones, K. K., and Laing, G. H.: The Effect of Viosterol on the Calcium Content of Dog's Bile, Am. J. Physiol. **110:** 471 (Dec. 1) 1934.

mobiles with railroad trains and street cars. It is astonishing to note in the official figures of the Bureau of the Census that in 1910 the death rate from automobile accidents was only 1.8. By 1920 it had increased to 10.4, and from then each year it increased, to reach 25.2 in 1931. The excessive speed of modern cars and the fact that many persons are permitted to drive who are handicapped by temperament or character, or physical disabilities, will continue to make the total deaths a large figure. To a large extent the responsibility rests on educators, legislators and police officers.

Association News

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central standard time. The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

February 28. Protecting the Heart.
March 7. Headache.
March 14. Physical Defects.

National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, central standard time. The next three broadcasts will be as follows:

February 26. Health and Education, Morris Fishbein, M.D.
March 5. Surgery In Diabetics, Leland S. McKittrick, M.D., who will speak from the National Broadcasting Company's studios in Boston, by special arrangement.
March 12. Food and Drug Law Revisions, Paul N. Leech, Ph.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Bill Enacted.—H. 30 has been enacted as chapter 49, Laws, 1935, prohibiting cities and towns of from 16 to 18 thousand population from collecting occupational taxes from physicians practicing within their jurisdictions.

Bills Introduced.—H. 170 and S. 82, to amend the workmen's compensation act, propose to make the following occupational diseases compensable: (1) poisoning from lead, mercury, phosphorus, arsenic, wood alcohol, benzol, carbon bisulphide, nitrous fumes, nickel carbonyl, tetrachlormethane, radium, methyl chloride, carbon monoxide, phosphoric, sulphuric, hydrochloric or hydrofluoric acid; (2) dermatitis; (3) bursitis or synovitis; (4) compressed air illness; (5) miners' disease; (6) anthrax.

ARKANSAS

Bill Introduced.—H. 281 proposes to provide a system of compensation for workmen injured by accident arising out of and in the course of their employments. An employer is to furnish an injured workman reasonable medical, surgical and hospital services and medicines not to exceed $250 in value.

Bill Enacted.—S. 126 has become a law, supplementing the medical practice act by requiring licentiates of the eclectic medical examining board to register annually with that board and to pay at that time a registration fee of $2. Failure of an eclectic licentiate to register within the time stated will suspend automatically his right to practice, and a failure to register for three consecutive years will automatically cancel his license to practice.

A Dinner Meeting.—Dr. Fergus O. Mahony, El Dorado, president of the Arkansas Medical Society, was guest of honor at a dinner meeting, recently, of the Pulaski County Medical Society. Others in attendance were the following past presidents of the state society: Drs. Edward E. Barlow, Dermott; Robert Caldwell, Little Rock; Leonce J. Kosminsky, Texarkana; Herbert Moulton, Fort Smith; Frank Vinsonhaler, Little Rock; William T. Wootton, Hot Springs National Park; Darmon A. Rhinehart, and President-Elect Melvin E. McCaskill, both of Little Rock. It was said that this was to become an annual function of the Pulaski County Medical Society. Speakers were Drs. Warren H. Cole on "Causes of Failure in the Surgical Treatment of Gallbladder Disease," and Robert Elman, "Reduction of Mortality in Intestinal Obstruction." Both physicians are assistant professors in surgery at Washington University School of Medicine, St. Louis.

CALIFORNIA

Personal.—Dr. Albert J. Supple has been appointed health officer of South Pasadena.——Oliver Peebles Jenkins, Ph.D., emeritus professor of physiology at Stanford University, died January 9, aged 84.——Dr. Wilbur C. Batson, Greenville, has been appointed health officer of Plumas County, succeeding Dr. Bert J. Lasswell, Quincy.

Lectures in San Francisco.—Dr. Karl Lindner, chief of the eye clinic in Vienna and successor to Prof. Ernst Fuchs, who died in 1931, will be in San Francisco, March 10, to deliver a series of five lectures and demonstrations under the auspices of Stanford University School of Medicine. Further information may be had from Dr. Hans Barkan, Stanford University Hospital, San Francisco.

Eyesight Swindlers Active Again.—The California State Board of Medical Examiners reports that eyesight swindlers are active again in California. Mrs. Frances Rasmussen, San Jose, paid $850 for a fake eye treatment with alleged radium to two men who gave the names J. O. Miles and John Doe Avery, Nov. 13, 1934. She did not report the matter to the police, however, until December 10. Two days later, December 12, a similar episode was reported to the California board from authorities in Skagit County, Wash., where the "eye specialists" fleeced an aged couple out of $750, their life savings, by a fake cataract operation and the sale of an electric belt. A receipt for payment in full was obtained in the Rasmussen case, giving the signature "J. O. Miles, Box 417, Chicago." The names used in this case were Richard Roe alias Dr. Avery and William McBride, alias S. Clark, alias Dr. Miles, alias H. J. Pierce. These swindlers are apparently the same whose irregular activities have frequently been reported in THE JOURNAL.

Society News.—A joint meeting of the Los Angeles County Medical Association and the Public Health League, January 17, was devoted to a review of the activities of the public health league; the speakers were Mr. Ben H. Read and Drs. Harry H. Wilson, Glenn E. Myers, Clarence G. Toland and John W. Crossan.——Dr. Willard J. Stone, Pasadena, among others, addressed the Clinical and Pathological Society, in Los Angeles, January 24, on "Infectious Biliary Cirrhosis with Marked Atrophy of Liver."——The Society for Neurology and Psychiatry of Los Angeles, January 16, was addressed by Drs. George H. Patterson, Los Angeles, and William A. Edler, Pasadena, on "Third Ventricle Tumors" and "The Law versus Psychiatry," respectively. Otto Rank, Ph.D., Paris, France, discussed "Self-Inflicted Illness" before the society, February 15. ——Dr. Arthur D. Bevan, Chicago, addressed the Los Angeles Surgical Society, February 8, on "The Present Status of the Appendicitis Problem." Dr. George W. Pierce, San Francisco, addressed the society, Dec. 14, 1934, on "Reconstruction Surgery After Burns." Dr. Alfred E. Gallant was elected president at this meeting.

Bills Introduced.—S. 468, to amend the medical practice act, proposes (1) to authorize courts on the application of the state board of medical examiners to enjoin the unlicensed practice of medicine and (2) to amend the title of the act so as to eliminate reference therein to osteopathy. S. 473, in effect, proposes to permit corporations and persons to qualify under the insurance laws of the state to issue medical and hospital service insurance, which "includes the contracting by way of insurance, for the furnishing or procuring of hospital, medical or related professional services permitted by law and required by reason of illness, injury or disablement of the prevention thereof." S. 474, to amend the laws relating to insurance, proposes that a medical and hospital service insurer, referred to in S. 473, shall not transact medical and hospital service insurance unless it has paid-in capital of at least $25,000. In determining paid-in capital,

the unexpired portion of all premiums, dues or other payments received and to be received on business then in force is to be considered as a liability. A. 784 proposes to limit the retail sale or distribution of prophylactics and contraceptives to licentiates of the state board of medical examiners, of the state board of osteopathic examiners and of the state board of health. A. 946, to amend the chiropractic initiative act, approved by the electors, Nov. 7, 1922, proposes, among other things, to define chiropractic as "the art and science of locating and adjusting by hand to restore to normal any abnormal anatomic relation for the purpose of removing interference with the transmission of nerve force, and also includes all natural, drugless, mechanical, hygienic, and sanitary measures incident to the care of the body when administered previous to or subsequent to an adjustment." The bill proposes also to eliminate the specific prohibition contained in the present law against the use by chiropractors of any drug or medicine now or hereafter included in materia medica. A. 990, to amend the dental practice act, proposes to define the following acts as unprofessional conduct, in addition to the acts now specified by law: (1) advertising of a character tending to deceive or mislead the public; (2) advertising professional superiority; (3) advertising fixed prices for services; (4) advertising by means of any sign containing the representation of a tooth, bridge work or any portion of the human head; (5) employing advertising solicitors or press agents; (6) advertising free dental work or free examination; (7) advertising to guarantee any dental service, and (8) advertising to perform any dental operation painlessly. S. 499, to amend the dental practice act, proposes to authorize courts on the application of the board of dental examiners to restrain the unlicensed practice of dentistry. S. 512, to amend the pharmacy practice act, proposes to permit employees of a proprietor of a pharmacy, who is himself a registered pharmacist or who has a registered pharmacist regularly employed in the pharmacy, to sell such drugs and medicines as general dealers in rural districts, licensed by the board of pharmacy, are permitted to sell. S. 534 proposes to prohibit the admittance of any person to a private psychopathic institution, or any institution for the care or treatment of persons mentally ill or deranged, without a written statement from at least two licensed physicians that they have examined the patient and that he should be admitted for care or treatment. Any person in an institution for the care or treatment of the mentally ill must be permitted to communicate at any time with whomsoever he desires. Any institution violating the provisions of this bill is to have its license revoked.

COLORADO

Bill Introduced.—H. 138 proposes to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act.

Health in Denver.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended February 9, indicate that the highest mortality rate (23.1) appears for Denver, and for the group of cities as a whole, 13.1. The mortality rate for Denver for the corresponding period last year was 12.6, and for the group of cities, 12.2. The annual rate for eighty-six cities for the six weeks of 1935 was 13.1, as compared with a rate of 12.5 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Society News.—Dr. Charles H. Boissevain, Colorado Springs, addressed the Fremont County Medical Society, Dec. 17, 1934, in Canon City, on "Public Health, with Special Reference to Irrigation with Contaminated Water."——At a meeting of the San Luis Valley Medical Society in Alamosa, Dec. 15, 1934, Drs. Constantine F. Kemper and George B. Kent, Denver, discussed "Practical Endocrinology" and "Surgery of the Thyroid," respectively.——Speakers before the Medical Society of the City and County of Denver, January 15, were Drs. Hamilton I. Barnard on "Open Reduction of Fractures," Ralph H. Verploeg, "Convalescent Serum in Pediatrics," Osgoode S. Philpott, "Use of Serum in the Treatment of Erysipelas," and Leonard Freeman Jr., "Drainage of the Stomach and Small Intestine."

CONNECTICUT

Dr. Mendel Awarded the Conné Medal.—Lafayette B. Mendel, LL.D., Sterling professor of physiological chemistry, Yale University School of Medicine, New Haven, will be awarded the 1934 Conné Medal of the New York Chemists' Club, the New York *Times* reported, February 16, in recognition of "his outstanding chemical contributions to medicine." Dr. Mendel, who received the doctor of philosophy degree from Yale in 1893, has been associated with the institution since 1892; he has held his present position since 1921. A member of many scientific societies, Dr. Mendel is the author of "Childhood and Growth"; "Nutrition—The Chemistry of Life," and "Changes in the Food Supply and Their Relation to Nutrition," and an editor of the *Journal of Biological Chemistry*. In 1927 he was awarded the gold medal of the American Institute of Chemists.

Bills Introduced.—S. 222 and S. 458, to amend the law requiring the licensing of institutions for the treatment and care of insane persons or persons suffering from other abnormal mental or nervous conditions, propose to authorize the state department of health, rather than the governor, to license such institutions annually, to prescribe a sanitary code for the government of such institutions and to revoke licenses for stated causes. S. 452 proposes to authorize the pharmacy commission to adopt rules and regulations concerning the granting to stores, not licensed pharmacies, of permits to sell proprietary and patent medicines. S. 456, to supplement the pharmacy practice act, proposes that in a store not a licensed pharmacy, which has been licensed to do so by the commission of pharmacy, proprietary and patent medicines may be sold if they are in sealed containers labeled and accompanied with directions for use, and with the name and address of the manufacturer or distributor. Such patent and proprietary medicines, however, must not contain alcohol in excess of the amount necessary for use as a solvent or preservative and must not contain more than 2 grains of opium, nor more than ¼ of a grain of morphine, nor more than ⅛ of a grain of heroin, or 1 grain of codeine. H. 845, to amend the law requiring licensed physicians, osteopaths, chiropractors, naturopaths, chiropodists and nurses to register annually and to pay a $2 fee, proposes to eliminate the annual fee required. H. 848 proposes to prohibit the retail sale or other retail distribution of barbital and other hypnotic or somnifacient drugs, except on the prescription of a licensed physician, dentist or veterinarian. The prohibited drugs are barbital, malonylurea, sulphonethylmethane (trional), sulphonmethane (sulphonal), diethyl-sulphone, diethyl-methane (tetronal), paraldehyde, and chloral or chloral hydrate or chlorbutanol. H. 852 proposes to repeal the laws regulating the sale, distribution and possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act. H. 850 proposes to amend the law prohibiting the use of any drug, article or instrument for the purpose of preventing conception. The bill proposes that nothing in that law shall apply to a licensed physician nor to any patient acting under his advice, when in his opinion pregnancy would be detrimental to the patient's health or to the child of such patient. H. 1165, to amend the medical practice act, proposes to eliminate the requirement that an applicant for a license to practice medicine must be a citizen of the United States.

DELAWARE

Bill Passed.—S. 37 has passed the senate, proposing to make it the duty of physicians and midwives in attendance at childbirth (1) to use either a 1 per cent solution of silver nitrate, a 10 per cent solution of argyrol, or a 1 per cent solution of protargol, or their therapeutic equivalent, as a prophylactic against inflammation of the eyes of the new-born; (2) to make a record of the prophylactic used, and (3) to endorse the details thereof on every birth certificate.

Bills Introduced.—H. 95 proposes to permit licensed physicians, employees of the state board of health designated for the purpose, employees of the state board of education designated for the purpose, and any person designated by an accredited organization for the teaching of social hygiene to give lectures or instruction with respect to sex hygiene, including the prevention of disease. H. 94 proposes to permit licensed physicians and registered nurses to give information respecting contraception and to prescribe or supply any medicine or article adapted for the prevention of conception.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—S. 31 and H. R. 4996 have passed the Senate and the House, providing for the issuance of a license to practice the healing art in the District of Columbia to Dr. Chester C. Groff.

IDAHO

Society News.—Dr. Charles R. Scott, Twin Falls, addressed the Southwest Idaho District Medical Society at Boise, Dec. 15, 1934, on economic questions and public relations. Dr. Robert F. E. Stier, Spokane, Wash., spoke on allergic diseases and Dr. Paul H. Herron, Spokane, Wash., diseases of children.

ILLINOIS

Bill Introduced.—H. 236 proposes to accord to physicians, dentists, drugless practitioners, nurses and hospitals, treating persons injured through the negligence of others, liens on all rights of actions, claims, judgments, settlements or compromises accruing to the injured persons by reason of their injuries.

Society News.—Dr. Andrew C. Ivy, Chicago, spoke before the Rock Island County Medical Society, February 12, on "Applied Physiology of the Biliary Tract."——At a meeting of the Will-Grundy County Medical Society, February 13, Dr. Jerome R. Head, Chicago, discussed "Surgical Treatment of Pulmonary Tuberculosis."——A symposium on the socialization of medicine was presented before the Eleventh Councilor District Medical Society, February 14; speakers were Drs. Rollo K. Packard, Chicago, Harold M. Camp, Monmouth, and John R. Neal, Springfield.

Chicago

University News.—Dr. Wingate Todd, Henry Willson Payne professor of anatomy, Western Reserve University School of Medicine in Cleveland, addressed the Society of Sigma Xi, at the University of Chicago, February 20, on "A Study in Child Development."——Dr. Gaius E. Harmon, recently appointed epidemiologist of the Chicago Board of Health, has been named professorial lecturer in epidemiology and vital statistics in the department of hygiene and bacteriology, in the Division of Biological Sciences, University of Chicago. He plans to give a special course in epidemiology during the spring quarter.

Society News.—The Chicago Medical Society was addressed, January 30, by Dr. Russell L. Haden, professor of medicine, Cleveland Clinic, Cleveland, on "The Recognition and Differentiation of the Anemias," and Dr. Richard H. Jaffe, "The Reticulo-Endothelial System."——Speakers before the Chicago Surgical Society, February 1, included Drs. Alexander Brunschwig on "Large Doses of Calcium in Treatment of Metastases to Bone"; Hilger Perry Jenkins, "Delayed Pedicle Skin Grafts," and Harold C. Voris, "Surgery of the Frontal Lobes."——At a meeting of the Chicago Laryngological and Otological Society, February 4, Drs. I. Davidsohn and John A. Cavanaugh discussed "Infectious Mononucleosis" and "Sphenoid on Parade," respectively.——Dr. Charles F. Geschickter, Baltimore, addressed the Chicago Orthopedic Society, February 8, on "Tumors of the Bone."

INDIANA

Personal.—Dr. Herman W. Smelser has been made health commissioner of Connersville and Fayette County.——Dr. Myron L. Habegger has been appointed health officer of Berne, succeeding Dr. Daniel D. Jones.

Bill Passed.—H. 211 has passed the house, proposing to authorize counties, cities and towns to supply insulin free of charge to citizens who are in need of insulin for treatment for diabetes and who are financially unable to purchase the drug.

Reciprocity Reestablished with Illinois.—The state department of registration ratified a plan, January 8, which reestablishes reciprocity licensure with Illinois. A resolution was adopted at this meeting which provides that clinical examinations will be required of licentiates from those states which require clinical examinations together with credentials. A fee of $10 will be charged these licentiates to cover the cost of examination. The first clinical examination was given in Indiana, January 9. Three or four clinical examinations will be given annually. Reciprocity with Illinois was rescinded March 13, 1931, because Indiana applicants were required to take a clinical examination in Illinois, although licentiates from Illinois were not compelled to fill this requirement in Indiana. All members of the board were reelected at this meeting.

Bills Introduced.—S. 130, to supplement the pharmacy practice act, proposes to denominate stated drugs as "poisons" and to require pharmacists to keep a designated record of such drugs, showing the name of the person to whom sold, his address, and the purpose for which sold. The provisions of the bill, however, are not to apply to drugs dispensed on the prescription of a licensed physician, dentist or veterinarian. S. 185 proposes to prohibit any private hospital from denying any member of the immediate family of any patient access to the patient's room at any time. No person employed by a private hospital is to change or refuse to administer the treatment prescribed by the patient's physician. The board of health is to be authorized to investigate the management, facilities, accommodations and rules of any private hospital which are alleged to be discriminatory and any other practice which, in the judgment of the board, is not conducive to the comfort, convenience or necessary privacy of patients. After a hearing, the board may make such orders as it deems necessary to correct the conditions complained of. If such a hospital shall refuse to carry out the orders of the board, the secretary of state is to revoke the authority of the hospital to transact business.

Society News.—The Jay County Medical Society was addressed in Portland, January 4, by Dr. Homer G. Hamer, Indianapolis, on "The Essentials of Urinary Diagnosis."——Dr. Carleton B. Peirce, Ann Arbor, Mich., discussed chest diagnosis before the Muncie Academy of Medicine in Muncie, January 8.——At a meeting of the Wabash County Medical Society in North Manchester, January 9, Dr. Eugene B. Mumford, Indianapolis, spoke on conditions of the knee joint. ——Dr. Eric Oldberg, Chicago, addressed the Lake County Medical Society, January 10, in Gary, on "Head Injuries."——The Tipton County Medical Society was addressed in Tipton, January 21, by Dr. Edward T. Stahl, Lafayette, on fractures. ——At a meeting of the St. Joseph County Medical Society in South Bend, January 22, Dr. Robert B. Acker, South Bend, discussed "Malignancies of the Bones."——Dr. Lyman T. Rawles, Fort Wayne, spoke before the Whitley County Medical Society in Columbia City, January 15, on sickness insurance.——Dr. Roy D. Arn, Springfield, Ohio, discussed "Management of Fractures of the Skull and Intracranial Damage" before the Henry County Medical Society in Newcastle, January 17.——The Wayne-Union Counties Medical Society was addressed, January 10, by Dr. George J. Garceau, Indianapolis, on backache.——At a meeting of the Indianapolis Medical Society, January 29, Dr. Norman M. Keith, Rochester, Minn., discussed "Types of Renal Disease and Their Clinical Significance."

IOWA

Medical Referee for Emergency Relief.—Dr. Thomas C. Denny, Des Moines, has been appointed medical referee in handling emergency relief in Iowa. The position was created on the recommendation of Dr. Knox E. Miller of the U. S. Public Health Service, following his survey of medical relief problems in Iowa. One of the first duties of Dr. Denny will be to coordinate county, state and federal relief agencies through the establishment of an organization to handle medical relief. Dr. Denny graduated from Jefferson Medical College in 1912. For the past several years he has served in various capacities with the Central Life Insurance Company of Iowa, holding the presidency from 1927 to 1932. He was president of the Des Moines Chamber of Commerce in 1933. Recently he was presented with the Des Moines Tribune's Community Service Award for 1934 for his services to civic and community enterprises over a period of several years.

Society News.—Dr. Homer W. Scott, Fort Dodge, addressed the Calhoun County Medical Society in Rockwell City, Nov. 21, 1934, on "Treatment of Acute Gonorrhea in the Male."——At a meeting of the Carroll County Medical Society in Carroll, Nov. 15, 1934, Drs. Harry A. Collins and Lester D. Powell, Des Moines, discussed peptic ulcer.——Dr. Frank E. Burch, St. Paul, discussed conditions of the eye before the Cerro Gordo County Medical Society, Nov. 13, 1934, in Mason City.——At a meeting of the Emmett and Dickinson county medical societies in Estherville, Nov. 15, 1934, Dr. Herman O. McPheeters, Minneapolis, discussed "Injection Treatment of Varicose Veins." ——Speakers before a joint meeting of the Pottawattamie and the Omaha-Douglas county (Nebraska) medical societies in Council Bluffs, Nov. 22, 1934, were Drs. Louis D. McGuire on "Surgical Diseases of the Spleen"; Frank M. Conlin, "Hereditary Factor in Disease, with Particular Reference to Diseases of Metabolism," and John A. Borghoff, "Eczema." ——The Linn County Medical Society was addressed, February 14, by Drs. Arthur F. Bratrud, Minneapolis, on "Ambulatory Treatment of Hernia," and Guy S. Van Alstyne, Chicago, "Diagnosis of Hypertrophic Pyloric Stenosis, with History, Preoperative Preparation, the Operation, the Postoperative Management and Weight Curve." The society was addressed, January 10, by Drs. William H. Olmsted, St. Louis, on "Vascular Diseases of the Extremities," and Louis G. Herrmann, Cincinnati, on "The Passive Vascular Exercise Method of Treating Obliterative Arterial Diseases of the Extremities."

KANSAS

Bill Introduced.—S. 280 proposes to repeal the present workmen's compensation act and to enact a new workmen's compensation act. An employer is to furnish to an injured workman such medical and surgical care as may be reasonably necessary to cure and relieve him from the effects of his injury.

but the cost thereof is not to exceed $300 and the period of time during which such care must be furnished is not to exceed sixty days from the date of the accident.

MAINE

Bill Introduced.—H. 1190 limits the retail sale or other retail distribution of sanitary or prophylactic rubber or other articles for the prevention of venereal or other diseases and infections to persons licensed by the state bureau of health.

MARYLAND

Personal.—Dr. Arthur M. Shipley has resigned from the staff of the Baltimore City Hospitals, because of the increase of his duties as professor of surgery at the University of Maryland School of Medicine, Baltimore.——Dr. George C. Halley, Easton, has been appointed health officer of Talbot County, succeeding Dr. Arthur L. Oilar, resigned.

Tularemia.—Twenty-one cases of tularemia were reported to the state department of health during the first three weeks of December as compared with seventeen during the same period of 1933. Of the twenty-one cases, twelve with three fatalities occurred in Baltimore City. Since 1928, when tularemia was made a reportable disease in Maryland, 148 cases have been reported with eighteen deaths.

Society News.—Speakers before the Baltimore City Medical Society, February 15, were Drs. Louis H. Douglas, "Modern Aspects of Obstetrical Care"; Samuel McLanahan, "Carcinoma of the Large Intestine, Some Conclusions from a Recent Survey," and George McLean, "An Unusual Case of Zinc Chloride Poisoning."——Dr. Frank G. Boudreau of the Health Section of the League of Nations, Geneva, Switzerland, gave a public lecture at the School of Hygiene and Public Health of Johns Hopkins University, January 8, on "Medical Care Here and Abroad."

Bills Introduced.—H. 166, to amend the osteopathic practice act, proposes, in effect, to authorize osteopaths to make and sign death certificates. H. 85 proposes to authorize the issuance of a divorce if either spouse becomes incurably insane and has been committed to an institution for more than five years. H. 145 proposes to prohibit the retail sale and distribution of barbital and other hypnotic and somnifacient drugs except on the prescription of a licensed physician, dentist or veterinarian. The drugs mentioned are to include barbituric acid, sulphonethylmethane (trional), sulphonmethane (sulphonal) diethyl-sulphone, diethyl-methane (tetronal), paraldehyde, and chloral or chloral hydrate or chlorbutanol.

Another Public Health District.—A new health district will be set up in the western section of Baltimore in the vicinity of the University Hospital of the University of Maryland School of Medicine by the Baltimore City Health Department, it is reported. This district will be similar to one established in the eastern section in 1932, comprising the sixth and seventh wards, and financed by a grant from the Rockefeller Foundation through the School of Hygiene and Public Health of Johns Hopkins University (THE JOURNAL, July 9, 1932, p. 140). In this district the training of public health workers is carried on with a full time physician in charge as director of a branch of the city health department. It was pointed out that, like the eastern health district, the new district will be organized on a basis of political divisions, including as many as are required to provide about 100,000 persons. Headquarters will be established either in old hospital buildings or on adjacent hospital property. It is planned to divide the entire city eventually into public health districts.

MASSACHUSETTS

Institute for Tuberculosis Workers.—The National Tuberculosis Association sponsored an institute for tuberculosis workers at the Hotel Statler, Boston, February 4-9. Dr. Frederick T. Lord, Boston, president, Massachusetts Tuberculosis League, gave the opening address. Other speakers included Drs. Henry D. Chadwick, Newton; John B. Hawes 2d, Boston; Alton S. Pope, Boston, and Nahum R. Pillsbury, Braintree, and Philip P. Jacobs, Ph.D., New York.

Radiologic Conference.—The New England Roentgen Ray Society held a radiologic conference at the Hotel Statler, Boston, January 25-26. Members of the staffs of Massachusetts General, Boston City and Peter Bent Brigham hospitals participated in the program, which covered a wide range of radiologic subjects. At the dinner, Friday evening, Dr. Percy Brown, Egypt, was toastmaster. Speakers were Dr. John D. Camp, Rochester, Minn., on "Value of Arteriography in Peripheral Vascular Disease," and Dr. Merrill C. Sosman, Boston, "X-Ray Conference."

Bills Introduced.—H. 756 proposes to amend that provision of the medical practice act which requires an applicant for a license, among other things, to have attended courses of instruction for four years of not less than thirty-two school weeks in each year in one or more legally chartered medical schools by permitting an applicant who has attended "courses which in the opinion of the board are equivalent thereto" to be also eligible for licensure. H. 1629 proposes to make it a ground for divorce for either spouse to be incurably insane and to have been confined to an institution for a period of ten years or more.

Society News.—Dr. Reginald Fitz, Boston, addressed the Plymouth District Medical Society, January 17, on "Present Status of Medical Economics."——The New England Ophthalmological Society was addressed in Boston, January 15, by Drs. Alexander Marble, Boston, on "Studies of Blood Fat in Two Cases of Lipemia Retinalis," and Alfred A. Bielschowsky, department of research in physiologic optics, Dartmouth Medical School, Hanover, N. H., "Congenital and Acquired Anomalies in Fusion."——Dr. Elliott P. Joslin, Boston, addressed the Harvard Medical Society, January 8, on "Forty Years of Diabetes."——The Springfield Academy of Medicine was addressed in Springfield, February 12, by Drs. Rosco G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, on "Current Medical Problems," and Nathan B. Van Etten, New York, "An Economic Program for 1935."

MICHIGAN

New District Health Department.—The counties of Luce, Schoolcraft and Mackinac were organized into a new district health department, January 1. Grants from the U. S. Public Health Service and the Children's Fund of Michigan made the establishment of the new district possible. This brings the total to thirty-five counties having either full time county or district health department service in the state.

Society News.—Dr. Edgar A. Kahn, Ann Arbor, addressed the St. Clair County Medical Society in Port Huron, Dec. 4, 1934, on "Injuries and Tumors of the Brain and Cord."——Dr. Arthur W. McGarvah, Detroit, addressed the Tuscola County Medical Society at Cass City, Dec. 13, 1934, on "Conization of the Cervix."——Dr. Frederic Schreiber discussed intracranial injuries before the East Side Physicians' Association, January 10, in Detroit.

Lectures for the Public.—Dr. Thurman B. Rice, professor of bacteriology and public health, Indiana University School of Medicine, Indianapolis, gave a public lecture at the Book-Cadillac Hotel, Detroit, January 11, on "Common Sense in the Health Program." This was the first lecture in a series of three arranged by the public relations committee of the woman's auxiliary to the Wayne County Medical Society. Dr. Frank L. Rector, Evanston, Ill., field director of the American Society for the Control of Cancer, presented the second lecture, February 8, on "The Nature, Curability and Prevention of Cancer."

Personal.—Dr. Carl F. Moll, Flint, has been named physician to the Michigan School for the Deaf to succeed Dr. James K. Sutherland, it is reported.——Dr. Ferris Smith, Grand Rapids, was to address the annual session of the Royal College of Medicine, London, February 1, on "Management of Sinus Diseases."——Dr. James L. McCartney, formerly psychiatrist and director of the classification clinic, New York State Department of Corrections at Elmira Reformatory, and recently director of the Northwest Retreat, Portland, Ore., a guest home for convalescent or psychoneurotic persons, has been appointed on the neuropsychiatric staff of the Battle Creek Sanitarium.

MINNESOTA

Bill Introduced.—H. 574, to repeal the laws regulating the sale, distribution or possession of narcotic drugs, proposes to enact what apparently is the uniform narcotic drug act.

MISSOURI

Bill Passed.—H. 148 passed the house, proposing to prohibit the sale or other distribution of marijuana.

Dinner to Dr. Morfit.—The St. Louis Medical Society gave a dinner in honor of Dr. John C. Morfit, January 24, at the Missouri Athletic Association, and presented him with a testimonial of esteem, signed by members of the society, and a silver service. Dr. Morfit recently finished a term as president of the society. This was the second time he had held the office, the first having been in 1907. Dr. Morfit's reelec-

tion was the first time in forty-eight years that a physician had been recalled to the presidency of the society. Records of the society show, however, that five other ex-presidents had been elected two or more times (THE JOURNAL, Jan. 13, 1934, p. 140).

Bills Introduced.—H. 327, to amend the chiropody practice act, proposes to define chiropody as "the local, medical or surgical treatments [sic] of the ailments of the human foot, except amputation of the foot or toes, or the use of anesthetics other than local, or the use of the drugs or medicines other than local antiseptics." H. 388 proposes to require "all persons practicing medicine or surgery in any of its departments, professing to cure or attempting to treat the sick and others afflicted with bodily or mental infirmities, or engaging in the practice of midwifery or chiropody," to register annually with the state board of health on or before January 31 and to pay at that time a fee of $2. If any practitioner fails to register by May 1, the board is authorized to revoke his license to practice.

Society News.—The St. Louis Medical Society and the Missouri Social Hygiene Association held a joint meeting, February 19; the speaker was Dr. Paul A. O'Leary, Rochester, Minn., on "The Types of Neurosyphilis in Which Malaria Therapy is Indicated." Dr. Rosco G. Leland, Chicago, addressed a special meeting of the St. Louis Medical Society, February 18, on "Present Status of Social Security in Relation to Medical Economics and Health Insurance."——The Jackson County Medical Society was addressed, January 22, in Kansas City, by Dr. Richard L. Sutton Jr., on "Pathological and Clinical Aspects of Early Skin Cancer." "The Immunology of Osteomyelitis" was discussed by Drs. Paul F. Stookey, James B. Weaver and Louis A. Scarpellino.——Dr. Edward H. Skinner, Kansas City, discussed "Prevention and Cure of Cancer" before the Nodaway County Medical Society, February 6, and Dr. Harold P. Kuhn, Kansas City, "Management of the Complications of Gallbladder Surgery."——At a meeting of the Caldwell-Livingston County Medical Society in Chillicothe, January 29, Drs. Louis A. Scarpellino and Ernest Kip Robinson, Kansas City, discussed the diagnosis and treatment of diphtheria and cancer of the cervix, respectively.

MONTANA

Bill Introduced.—H. 190, to amend the workmen's compensation act, proposes to make the following occupational diseases compensable: anthrax, silicosis and poisoning from lead, mercury, zinc, arsenic, phosphorus, radium, roentgen rays and carbon monoxide.

Bills Passed.—S. 53 has passed the senate, proposing to amend the law prohibiting the production, distribution or possession of marijuana by making a violation of the act a felony punishable by imprisonment in the penitentiary for from one to five years and/or fine of from $500 to $1,000. H. 86 has passed the house, proposing to amend the chiropractic practice act so as (1) to define chiropractic as "the science that teaches that disease results from anatomic disrelation and teaches the art of restoring anatomic relation by adjustment by hand and the use of such other physical, thermo, and electrical methods and modalities as are necessary to the restoration of proper anatomic relation," and (2) to require a chiropractic licentiate to show as a condition precedent to his right to annual reregistration that during the past year he had attended a postgraduate course in a recognized chiropractic college or has attended at least one of the "educational" programs as conducted by the Montana Chiropractic Association.

NEBRASKA

Bills Introduced.—S. 100, to amend the dental practice act, proposes that the following acts, in addition to the acts now stated in the law, shall constitute "unprofessional conduct," for which a licentiate's license may be revoked: (1) advertising in a manner tending to deceive or mislead the public, (2) advertising professional superiority, (3) advertising prices for professional service, (4) advertising by means of large displays, glaring light signs, (5) advertising free dental work or free examinations, (6) advertising to guarantee any dental work and (7) advertising to perform any dental operation painlessly. H. 219, to supplement the law authorizing the sterilization of certain socially inadequate inmates of state institutions, proposes to authorize the sexual sterilization of feebleminded persons who are not inmates of state institutions. H. 406 proposes to require a physician examining any plaintiff who has pending a court action for damages for personal injuries to file with the clerk of the court, at least thirty days prior to the trial of the case, a written report of his findings. Any physician failing to make such a report is to be prohibited from testifying in the case and is not to be entitled to a physician's lien on any judgment rendered in the case. H. 477, to amend the chiropractic practice act, proposes (1) to define chiropractic as "the science of locating and correcting interference with nerve transmission and expression between brain cells and tissue cells," (2) to permit persons who have practiced chiropractic for at least seven years and who have participated in at least twenty-five deliveries, after examination by the chiropractic board, to practice obstetrics and (3) to permit chiropractors to practice physiotherapy. H. 587 proposes to prohibit the retail distribution or sale of barbital or other hypnotic or somnifacient drugs, except on the prescription of a licensed physician, dentist or veterinarian. The term "barbital" as used in the bill is to include the salts of barbituric acid. The term "other hypnotic or somnifacient drug" is to include sulphon-ethyl-methane (trional), sulphonmethane (sulphonal), diethylsulphon diethylmethane (tetronal), carbromal, paraldehyde and chloral or chloral hydrate or chlorbutanol. H. 433 and S. 218, to amend the workmen's compensation act, propose to make occupational diseases compensable. H. 441 proposes to require the state to reimburse hospitals treating indigent persons injured in motor vehicle accidents. H. 472, to amend the law relating to divorce, proposes to authorize a divorce if either spouse is incurably insane and has been confined in a hospital or asylum for at least ten years.

NEW YORK

Bill Introduced.—A. 1009 proposes to accord to charitable hospitals and to governmental hospitals, treating persons injured through the negligence of others, liens on all rights of action, claims, judgments, compromises or settlements accruing to the injured persons by reason of their injuries.

New Superintendent at Willard Hospital.—Dr. Harry J. Worthing, Ogdensburg, has been appointed superintendent of the Willard State Hospital for mental patients, Willard, to succeed Dr. Robert M. Elliott, who retired Dec. 31, 1934. Dr. Elliott had been head of the institution for thirty years and in the state service for forty-five years. Dr. Worthing was formerly head of the St. Lawrence State Hospital at Ogdensburg.

Thirty-Four Deaths from Poison Alcohol.—Thirty-four persons are reported to have died from alcohol poisoning in Utica and Gloversville recently. According to newspaper accounts the victims were seized with cramps, became blind, had convulsions and died in intense pain. The Chicago *Tribune* reported, January 7, that three men had been arrested and charged with first degree murder. Police said that the men, who were found in Brooklyn, were pedlers who had gone into the bootlegging business in Utica with a fruit store as a blind.

Society News.—Dr. George E. Slotkin, Buffalo, addressed the Ontario County Medical Society at its quarterly meeting in Canandaigua, January 8, on "Nephroptosis—A Resurrected Disease."——Dr. Robert H. Halsey, New York, addressed the Medical Society of the County of Nassau, January 29, on "Diagnosis and Treatment of Coronary Thrombosis."——Dr. Ralph Traver, Albany, discussed "Mammoth Ovarian Cyst" at a meeting of the Medical Society of the County of Albany, January 23, and Dr. Harold A. Peck, Albany, the Friedman "rabbit" test.

Campaign Against Chiropractic Schools.—The state department of education is conducting a campaign against chiropractic schools on the charge of having issued degrees without authority from the legislature or the regents, in violation of the education law. One case, against the Eastern Chiropractic Institute, was disposed of Dec. 28, 1934, in the court of special sessions of New York County, when three defendants received sentences of thirty days, execution of the sentences being suspended. Similar actions are in progress against the New York School of Chiropractic and the American School of Naturopathy. Supplementing these prosecutions, an active campaign is also under way against individual chiropractors. Chiropractors are not licensed in New York, and the court of appeals has held that the practice of chiropractic is the practice of medicine and that those who engage in it do so illegally.

New York City

University News.—Dr. Walter Reginald Bett, London, has been appointed librarian of the College of Physicians and Surgeons of Columbia University. He is a former medical superintendent of the Princess Elizabeth of York Children's Hospital, according to the New York *Times*.

Cancer Facilities.—A sixteen months survey of cancer facilities in Brooklyn, recently made public by the Welfare Council, disclosed that thirty-nine borough hospitals with 8,744

beds had only twenty free beds available for cancer patients and these are all at the Brooklyn Cancer Institute. Of twenty-nine outpatient departments, only the clinic of the cancer institute made special provision for cancer patients, it was said.

Research in Child Neurology.—A division of child neurology endowed by the Friedsam Foundation has recently been organized at the Neurological Institute of Columbia-Presbyterian Medical Center, it was announced January 22. Dr. Bernard Sachs is director; Drs. Frederick Tilney and Louis Casamajor are associate directors. The new division will be devoted to the promotion of research on the nervous and mental disorders of childhood. The Friedsam Foundation was instituted by the late Col. Michael Friedsam, president of B. Altman and Company.

Society News.—Dr. William Houston Toulson, Baltimore, addressed the Brooklyn Urological Society, Dec. 11, 1934, on "Resection of the Hypogastric Plexus for Urinary Bladder Disorders."——A symposium on "The Facts About X-Ray and Radium Therapy" was presented at the stated meeting of the New York Academy of Medicine, February 7, by Drs. George T. Pack, Howard C. Taylor Jr., Anthony C. Cipollaro and Cornelius G. Dyke. Dr. Lucy D. Porter Sutton delivered the twelfth Friday afternoon lecture, February 1, on "Carditis in Children"; Dr. Harold M. Marvin, New Haven, Conn., the thirteenth, February 8, on "Recent Advances in Cardiology," and Dr. Arthur M. Wright gave the fourteenth, February 15, on "Tumors of the Breast."

NORTH DAKOTA

Bill Passed.—H. 8, to amend the chiropody practice act, has passed the house. The bill proposes to define a chiropodist as "one who examines, diagnoses and treats abnormal nail conditions, excresences occurring on the feet, including corns, warts, callosities, bunions and arch disorders, or one who treats medically, mechanically or by physiotherapy in a chiropodic manner the human foot."

Bills Introduced.—S. 111 proposes to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what appears to be the uniform narcotic drug act. S. 142 proposes to permit any person to practice naturopathy who files with the recorder of deeds, in the county in which he proposes to practice, a diploma issued by any legally chartered school or college of naturopathy. The bill defines naturopathy "to mean the practice of the healing art as follows: The adjustment of the articulation of the human skeleton by hands or by any movements and mechanical appliances and the use of any physical forces such as air, light, water, pressure, vibration, heat, electricity, hydrotherapy, including the use of mineral salt baths and any other means or systems of therapeutics and dietetics correlated with the above therapeutic measures including nontoxic herbs and their essential oils, gums and resins applied, administered and prescribed, but shall not include the administration of drugs, the application of radium or surgery." H. 150 proposes to require all hospitals exempted from taxation to receive for treatment "any patient who desires to be treated by any system of known and generally recognized healing art to be employed at the request of the patient."

OKLAHOMA

Bill Passed.—H. 46 has been passed by the house, proposing to require every hospital or physician treating a patient suffering from an injury caused by the discharge of a gun to report the facts to the proper police authorities.

OREGON

State Board Election.—Dr. Robert L. Benson, Portland, was elected president of the state board of health at the annual meeting in January, succeeding Dr. Albert Mount, Oregon City. Drs. Joseph P. Brennan, Pendleton, and Frederick D. Stricker, Portland, were reelected vice president and executive secretary, respectively.

Bill Enacted.—H. 112 has become a law. The bill amends the medical practice act so as (1) to permit the medical examining board to hold meetings for examinations whenever it deems it advisable, provided such meetings are held at least twice a year, the present law requiring that meetings for examination be held on the first Tuesdays of January and July; (2) to permit the board to suspend licenses as well as to refuse to issue or to revoke them for the causes now stated in the law, and (3) to add to the conduct which shall be deemed to be "unprofessional and dishonorable conduct," the obtaining of any fee through fraud or misrepresentation.

Bills Introduced.—H. 241, to amend the chiropractic practice act, proposes to make a chiropractor's right to annual reregistration depend on his having attended in the preceding year at least one of the "educational" programs as conducted by the Oregon Association of Chiropractic Physicians, Inc., or on his having attended a postgraduate course in a recognized chiropractic college. H. 348 proposes to limit the sale and other distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of conception and/or venereal diseases, to licensed physicians and to licentiates of the state board of pharmacy. H. 244, to amend the naturopathic practice act, proposes (1) that the naturopathic board of examiners be appointed by the governor from lists of naturopathic physicians submitted by the Oregon Naturopathic Association, (2) to require applicants for licenses to be graduates of a school or college of "naturopathic therapeutics," which teaches a resident course of not less than three years of ten months each of not less than 4,000 hours and which teaches, in addition to the subjects now enumerated in the act, the subjects noted below and for the minimum number of hours noted: bacteriology, 100 hours; embryology, 100 hours; jurisprudence, 35 hours; laboratory, technic of diagnosis, 75 hours; herbology, 100 hours; biochemistry, 100 hours; (3) to deny annual reregistration to licentiates who in the preceding year have not attended one or more postgraduate courses held under the direction of the Oregon naturopathic association or have not attended courses in a recognized school or college of naturopathy, and (4) to authorize naturopaths "to sign any and/or all certificates requiring the signature of a physician."

PENNSYLVANIA

Bill Introduced.—H. 494 proposes to regulate the practice of chiropractic and to create a chiropractic board of examination and licensure in the department of public instruction. Chiropractic is defined as "the examination of the human spine by observation, palpation or x-ray and the adjustment of any or all misalinements of vertebrae or adjacent bones or tissues through the use of the hands."

Social Welfare Conference.—At the annual Pennsylvania Conference on Social Welfare in Pittsburgh, February 19-23, physicians who participated in the program were Drs. Alexander H. Colwell, Pittsburgh, president-elect of the Medical Society of the State of Pennsylvania, who took part in a discussion of socialized medicine; Moses Behrend, Philadelphia, president of the state society, and Harold A. Miller, Pittsburgh, state director of emergency medical relief, in a discussion of one year's operation of the relief plan, and Charles H. Frazier, Philadelphia, president of the Public Charities Association of Pennsylvania, administration of public welfare services.

Society News.—Drs. Holbert J. Nixon and Herbert Lund, Uniontown, addressed the Fayette County Medical Society, Uniontown, February 7, on "Hyperchromic and Hypochromic Anemias of Pregnancy" and "Physiology of Blood Clotting," respectively.——Dr. Edward I. Steinberg, Erie, addressed the Crawford County Medical Society, Titusville, Dec. 5, 1934, on diseases of the skin.——Dr. Ashley W. Oughterson, New Haven, Conn., addressed the Lackawanna County Medical Society, Dec. 4, 1934, on surgical treatment of pulmonary tuberculosis.——The Lawrence County Medical Society at a meeting in New Castle, Dec. 6, 1934, adopted resolutions stating its disapproval of all forms of compulsory health insurance and protesting against encroachments by the state on the practice of medicine, among other matters.——Speakers before the Montgomery County Medical Society, Abington, February 6, in a joint meeting with the staff of the Abington Memorial Hospital, were Drs. Roland D. Porter, Abington, George Morris Piersol, Philadelphia, and William D. Stroud, Philadelphia, in a symposium on high blood pressure.

Philadelphia

Personal.—Dr. Louis D. Englerth has been appointed visiting surgeon to the Philadelphia General Hospital, succeeding the late Dr. Harvey M. Righter.——Dr. Elwood R. Kirby has been appointed by the mayor a member of the Board of Health of Philadelphia to fill the vacancy caused by the recent resignation of Dr. Alexander C. Abbott after thirty-one years' service.

Thomas Oration in Urology.—The Philadelphia Urological Society of the American Urological Association presented the B. A. Thomas Annual Oration, January 28, given by Dr. William E. Lower, Cleveland, on "The Control of Benign Prostatic Hypertrophy: An Experimental Review and a Clinical Prediction." Drs. Maurice D. Friedman and Alexander Randall discussed the paper.

Hatfield Lectures.—Dr. William H. Park, Herman M. Biggs professor of preventive medicine, University and Bellevue Hospital Medical College, New York, and Michael Heidelberger, Ph.D., associate professor of biologic chemistry, Columbia University, delivered the Nathan Lewis Hatfield Lectures of the College of Physicians of Philadelphia, February 6. Dr. Park's subject was "Certain Clinical Aspects of Immunology" and Dr. Heidelberger's, "Chemical Aspects of Antigens, Antibodies and Their Interaction."

Pittsburgh

Society News.—Dr. William C. Bryant presented a paper on cystitis before the Pittsburgh Urological Association, February 11.——Speakers at a meeting of the Pittsburgh Academy of Medicine, February 12, were Drs. Joseph S. Baird, on "Preventive Aspects of Some of the Acute Infectious Diseases"; Paul R. Sieber, "Treatment of Fracture of the Os Calcis," and Andrew B. Fuller, "Basis of Symptoms in Arteriolar Disease."——Speakers who addressed the Allegheny County Medical Society, Pittsburgh, January 15, were Drs. Robert C. Hibbs, on "Gonorrheal Arthritis"; Paul Titus, "Treatment of Sterility," and Rosario Charles Nucci, "Carcinoma of the Cervix."

TEXAS

Bills Introduced.—S. 220 proposes to make it the duty of every physician or midwife, required by law to register births, to affix to the registration blanks required by law the fingerprint and the footprint of any infant which he or she delivered. H. 448 proposes to render inadmissible in evidence in any civil suit any testimony concerning an autopsy unless it be shown that the nearest living relative or surviving spouse of the deceased consented to its performance and that a physician of his or her own choice was present thereat.

UTAH

Bill Introduced.—H. 87 proposes to make it a felony for any person to sell or furnish a narcotic drug in any form to a person under 21 years of age. The provisions of the bill, however, are not to apply to the furnishing of any narcotic on the prescription of a licensed physician.

VERMONT

Bill Introduced.—S. 24 proposes to create a state board of naturopathic examination and registration and to regulate the practice of naturopathy, which the bill does not define.

VIRGINIA

Personal.—Dr. Letcher E. Trent, psychiatrist on the staff of the Veterans' Administration, has been appointed chief medical officer of the new Veterans' Facility at Roanoke. He is now director of the facility at Perry Point, Md.——Dr. Charles Howe Eller, health officer of Bernalillo County, N. M., with headquarters in Albuquerque, has been appointed health officer of Charlottesville and Albemarle County to succeed Dr. Edwin L. McQuade. Dr. McQuade resigned last September to become director of rural health in the state health department.——Alfred Chanutin, Ph.D., professor of biochemistry, University of Virginia Department of Medicine, Charlottesville, recently was awarded the Gibbs Prize of the New York Academy of Medicine for research on disease of the kidneys. The prize has a value of $750 and is limited to research in that field.——Dr. William A. Brumfield, Farmville, has been made director of a new health district including the counties of Rockingham, Shenandoah, Page, Rappahannock, Madison and Greene, with headquarters at Harrisonburg.

WASHINGTON

Personal.—Dr. Arthur C. Crookall, Seattle, has resigned as executive chairman of the Public Health League of Washington after many years' service. Dr. Frank J. Clancy, Seattle, is his successor.

Bill Passed.—H. Joint Memorial No. 19 has passed the house, memorializing President Roosevelt and Congress to amend the Harrison Narcotic Act so as to permit narcotic addicts to be cared for through a clinic system under the direction of the United States Public Health Service acting in cooperation with city, county and state health boards.

Society News.—Drs. George H. Anderson and Edwin J. Barnett, Spokane, addressed the meeting of the Chelan County Medical Society with the Central Washington Dental Society, Dec. 12, 1934, at Wenatchee, on "Relation of Dental Infections to Systemic Disease" and "Dental Caries in Children," respectively.——Dr. Donald V. Trueblood, Seattle, addressed the Clallam County Medical Society, Dec. 12, 1934, at Port Angeles, on lesions of the skin.——At a meeting of the Pierce County Medical Society, Tacoma, Dec. 11, 1934, Dr. Edgar F. Dodds reviewed modern methods of resuscitation.——Drs. Clarence L. Lyon and Alphonso N. Codd, Spokane, addressed the Yakima County Medical Society, Yakima, Dec. 10, 1934, on "Present Status of Thymic Hypertrophies" and "Bronchoscopy and Esophagoscopy," respectively.——Drs. Torleif Torland and Irvin A. Weichbrodt addressed the King County Medical Society, Seattle, January 21, on "Vaginal Hysterectomy by the Clamp Method" and "Malpractice," respectively. Dr. Paul J. Hanzlik, San Francisco, addressed a special meeting of the society, Dec. 28, 1934, on intravenous medication.——The annual meeting of the Tacoma Surgical Club, March 30, will be devoted to discussion of obstetric and gynecologic pathology, with Dr. Otto H. Schwarz, professor of obstetrics and gynecology at Washington University School of Medicine, St. Louis, as guest speaker.

Bills Introduced.—S. 148 proposes to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act. H. 278 proposes to make it unlawful for any "tax and charitably supported and tax-exempt hospital" to deny any "physician, surgeon, doctor or practitioner of Allopathy, Homeopathy, Sanipractic, Osteopathy, Chiropractic, Food Science, Psycho-Therapy or Mechano-Therapy" the right to practice within the confines of such hospital. H. 216 proposes to authorize the director of licenses to appoint an examining committee for applicants for licenses to practice naturopathy and to regulate the practice of naturopathy. Apparently, applicants for such a license would be subject to the existing basic science act. The bill gives no indication of the scope of a license to practice naturopathy and apparently grants to licentiates the right to report and certify to births and deaths and all other matters pertaining to public health and requires that all such reports and certificates must be accepted as legal. S. 129 proposes to regulate the practice of sanipractic. Applicants for a license to practice sanipractic need not pass the basic science examination and are examined only by an independent board of sanipractic examiners, to be appointed by the governor. Licentiates are to have the right to report births and deaths and all matters pertaining to public health, and such reports must be accepted as legal. The bill defines sanipractic as "the science and art of applied prophylactic and therapeutic sanitation, which enable the physician to direct, advise, prescribe or apply food, water, roots, herbs, light, heat, exercises, active and passive manipulation, adjusting tissue, vital organs, and anatomical structure by manual, mechanical or electrical, instruments or appliances; or other natural agency, to assist nature restore a psychological and physiological interfunction for the purpose of maintaining a normal state of health in mind and body." Apparently licentiates are to have the right to practice obstetrics. S. 137 proposes to authorize two or more adjacent counties to establish a sanatorium for the care and treatment of persons suffering from tuberculosis.

WISCONSIN

Bill Introduced.—A. 195 proposes to repeal the law requiring applicants for marriage licenses to present certificates from licensed physicians that they are free from venereal and contagious diseases.

Society News.—The Central Wisconsin Society of Ophthalmology and Otolaryngology held a meeting in Marshfield, recently, at which guest speakers were Drs. Cecil S. O'Brien and Dean M. Lierle, Iowa City, on "Choice of Operation in Cataract Surgery" and "Nasal Allergy," respectively.——Drs. John Edwin Habbe and Norbert Enzer addressed the Milwaukee Roentgen Ray Society, Nov. 16, 1934, on "Present Trends in Cardiac Roentgenology" and "Pathogenesis in Human Silicosis, respectively.

ALASKA

Inspection of Health of Indians.—Dr. Vance B. Murray, medical director, Alaskan Medical Service, under the office of Indian Affairs, department of the interior, plans three aerial trips this year to investigate the health of Indians in every isolated spot, according to the Chicago *Tribune*. Nearly 30,000 natives in small and isolated settlements will be visited. Dr. Murray is said to be sponsoring a program for inducing resident physicians to accept appointments as bureau deputies for part time employment by the government in treating natives in their districts. A plan whereby hospitals will accept a specified number of native patients each year at government expense is also under consideration.

GENERAL

Medical Library Meeting.—The Medical Library Association will hold its annual session in Rochester, N. Y., June 17-19, with headquarters at the Sagamore Hotel. Sessions will be held at the Rochester Academy of Medicine and the University of Rochester School of Medicine.

The Birth Control Bill.—The judiciary committee of the House of Representatives has tabled the bill introduced by Representative Pierce of Oregon, H. R. 2000, to relax the restrictions of the criminal code relative to the distribution of information concerning contraception and of means for accomplishing that end. The National Committee on Federal Legislation for Birth Control, of which Mrs. Margaret Sanger is chairman, has sent out an appeal asking that endorsers of its efforts send protests against this action to the chairman of the judiciary committee, Hon. Hatton W. Summers, House of Representatives, Washington, D. C. It is also asked that letters be written to the Senate judiciary committee, before which a similar bill, S. 600, is pending, urging favorable action.

Medical Fellowship at Geneva.—The Institute of International Education announces that a fellowship for graduate study in the medical faculty of the University of Geneva, Switzerland, is available with a stipend of 3,000 Swiss francs. The stipend does not cover steamship passage and incidental expenses, matriculation and semester fees (amounting to 60 francs) or laboratory fees. A candidate must be an American citizen, a graduate of an approved medical school or the holder of a master's or doctor's degree in a science related to the medical field and must have a thorough command of the French language, both written and spoken. Nominations will be welcomed. Applications must be filed before March 15 with the Secretary, Student Bureau, Institute of International Education, 2 West Forty-Fifth Street, New York.

Society News.—Dr. William Warner Watkins, Phoenix, Ariz., has resigned as editor of *Southwestern Medicine* after twelve years' service and has been succeeded by Dr. Orville Harry Brown, Phoenix. —— At the annual meeting of the American Association of Oral and Plastic Surgeons in Ann Arbor, Mich., January 18-19, officers were elected as follows: Drs. Joseph Eastman Sheehan, New York, president; Gordon B. New, Rochester, Minn., vice president, and Ernest Fulton Risdon, Toronto, Ont., secretary. The program consisted of clinics, demonstrations and papers. Following a dinner at the Michigan Union, Drs. Frederick A. Coller and Albert C. Furstenberg, Ann Arbor, made addresses on "Anatomic Aspects of Infections of the Face" and "Acute Infections of the Neck," respectively. The second day's meeting was held in Detroit, with clinics at Harper Hospital.

Reduction in Death Rates in Diphtheria, 1920-1933.—The U. S. Bureau of the Census has made public a summary of the deaths and death rates from diphtheria in the registration area of continental United States for the years 1920 to 1933. In 1920 there were 13,395 deaths from diphtheria and the next year the number rose to 15,683. Thereafter it steadily declined, except for a slight rise in 1927, until in 1933 there were 4,937 deaths. The rates per hundred thousand of estimated population follow the same general trend. In 1920 the rate was 15.3 and rose in 1921 to 17.6, falling thereafter except for 1927, to 3.9 in 1933. In 1920 states with the highest rates were Michigan with 23.8; Rhode Island, 21.2, and Pennsylvania, 19.8. By 1933 these had been reduced to 2.3, 1.3 and 2.4, respectively. In 1933 Kentucky had the highest death rate, 16 per hundred thousand, the next highest being West Virginia, with 10.9; Texas, 10.8, and Oklahoma, 10.6. New Hampshire had the lowest rate in 1933, with 0.4; the following states also had rates less than 1: Oregon, Utah, Vermont, Wisconsin and Wyoming.

Medical Bills in Congress.—S. 1834, introduced by Senator Walsh, Massachusetts, and H. R. 4990, introduced by Representative Guyer, Kansas, propose to authorize the Reconstruction Finance Corporation to make loans to publicly and privately controlled colleges, universities and other institutions of higher learning. S. 1841, introduced by Senator Tydings, Maryland, proposes to provide medical services after retirement on annuity to former employees of the United States disabled by injuries sustained in the performance of their duties. S. 1850, introduced by Senator Sheppard, Texas, and H. R. 5179, introduced by Representative Buchanan, Texas, propose to amend an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever" by including Roger P. Ames among those honored by the act. H. R. 5278, introduced by Representative Underwood, Ohio, proposes to establish a Bureau of Veterans' Affairs in the Department of the Treasury, to repeal all existing laws relating to veterans, with the exception of those relating to insurance, and to enact an entirely new veterans' act. H. R. 5370, introduced by Representative Higgins, Massachusetts, proposes to amend existing law relating to the mailing of articles, information and devices for the prevention of conception or for producing an abortion, etc., by providing a penalty for any one who "shall knowingly cause the same to be delivered by mail according to the direction thereon, or at the place at which it is directed to be delivered by the person to whom it is addressed." H. R. 5495, introduced by Representative Collins, California, proposes to provide for entry on public lands for the purpose of establishing "health habitations." H. R. 5497, introduced by Representative Dunn, Pennsylvania, proposes to provide for the establishment of unemployment, old age and social insurance. The bill would direct the Secretary of Labor to provide for the immediate establishment of social insurance to provide compensation for all workers and farmers who are unable to work because of sickness, old age, maternity, industrial injury, or any other disability. H. R. 5600, introduced by Representative Pierce, Oregon, proposes to authorize the dissemination of information relating to the prevention of conception and articles, instruments, substances, drugs and medicines designed, adapted or intended for the prevention of conception (1) for use by any physician legally licensed to practice medicine in any state, territory or the District of Columbia, or by his direction or prescription; (2) for use by any druggist in filling any prescription of a licensed physician; (3) for use by any medical college legally chartered under the laws of any state, territory or the District of Columbia, or (4) for use by any hospital or clinic or governmental agency chartered under the laws of the United States, or licensed under the laws of any state, territory or the District of Columbia. H. R. 5693, introduced by Representative Arnold, Illinois, proposes to erect a veterans' hospital in Illinois.

Government Services

U. S. Public Health Service

Passed Asst. Surg. Walter L. Barnes, relieved at Hongkong, China, and assigned at Cebu, P. I.

Passed Asst. Surg. Eddie M. Gordon Jr., relieved at Manila, P. I., and assigned at Hongkong, China.

Passed Asst. Surg. Alfred B. Geyer, relieved at San Francisco, and assigned at Manila, P. I.

Positions Open for Pharmacologists

The United States Civil Service Commission announces open competitive examinations for five pharmacologists for various grades of service with the Food and Drug Administration. Entrance salaries range from $2,600 a year for the assistant grade to $5,600 a year for the principal grade, subject to deduction not to exceed 5 per cent during the present fiscal year, as a measure of economy, and also to a deduction of 3.5 per cent toward a retirement annuity. Applications must be on file not later than March 11. Full information may be obtained from the civil service board at the postoffice or customhouse in any city that has a postoffice of the first or second class, or from the commission at Washington.

New Pharmacologist in Food and Drug Administration

Dr. Erwin E. Nelson, associate professor of pharmacology, University of Michigan Medical School, Ann Arbor, has been appointed principal pharmacologist in charge of the drug division of the Food and Drug Administration. Dr. Nelson will investigate the pharmacologic action of drug and food preparations and will furnish critical advice on policies involving the effects of drugs and foods, or their ingredients or adulterants, on the health of consumers. He will also act as consulting expert on formulating policies for the enforcement of the Food and Drugs Act. Dr. Nelson received the degree of doctor of philosophy from the University of Missouri and a medical degree from the University of Michigan.

CORRECTION

Corpus Luteum Hormone.—In a Query and Minor Note entitled "Multiple Miscarriages" in THE JOURNAL, January 26, page 339, the words "estrogenic substance," which are the last two words on the page, should have read "the hormone of the corpus luteum (progestin)."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 2, 1935.

The Colossal Expenditure on Social Services

An official return, recently published, giving completed figures up to the end of the financial year 1932, shows the enormous strain to which Great Britain is subjected in the effort to ameliorate the conditions of the poorer section of the population. In the year 1931-1932 the expenditure on social services amounted to $2,450,000,000. This includes sums raised both by taxes and by rates and amounts to well over half the total raised for all purposes in the country. Expenditure on social services has been steadily and rapidly rising in recent years. Even in 1929-1930, when world depression began to make itself felt, the total was $2,340,000,000. In 1909-1910 it was only $315,000,000, less than one seventh of the last published figure. Figures for the years subsequent to 1931-1932 are not yet available. During these years there has been some improvement in unemployment, economy measures, necessary after the disastrous expenditure of the socialist government, have been in force, and the automatic decrease in the cost of war pensions has been in progress. But now political pressure has led to the restoring of the cuts, many social services, such as housing and school feeding, are being expanded, the system of poor relief is being revised, and automatic increases are taking place in many services, such as widows' and old age pensions. It therefore seems unlikely that the taxpayer will receive any relief from his tremendous burden. Wealthy persons are taxed to the extent of about half their incomes, and persons with moderate incomes to a less but still an oppressive degree. The defense forces have been reduced to an extent unparalleled in other countries and, in the opinion of experts, to a dangerous extent. This was done as an example to other countries in pursuance of a peace and disarmament policy. But the colossal increase of the cost of the social services has supplied another cause: it has not left sufficient money for the defense services. The greater part of the enormous expenditure on the social services is spent on the wage earner. When his child is born he receives a grant, free education is provided for his children, and free or cheap food, medical and unemployment benefit and old-age pensions are supplied, largely at the expense of the taxpayer. Yet the socialist party continues to clamor for more expenditure and pretends that the dangerous financial crisis produced by its prodigality in 1931 was simply engineered by the capitalist classes. The trouble is that in this time of universal suffrage even the conservative party has to dance to the tune of socialism. The only difference is that it tries to avoid doing it to a dangerous extent. The *Times* points out that only a tremendous effort in 1931 averted a catastrophe from which the poor would have suffered most and that, if the socialist party should be returned to power again, a similar successful effort might not be possible. At the present moment the government is spending large sums on housing and improving the administration of the unemployment dole, which far exceeds any grant to the unemployed made in any other European country. Yet it receives from the labor party leaders nothing but a shower of detraction and abuse. The inevitable hard cases, which can occur under any system, and which every effort is made to avoid, furnish an easy basis for attack and exaggeration by persons with no regard for the dangers and waste attending the distribution of public money.

International Neurological Congress

The second International Neurological Congress will be held in London from July 29 to August 2, under the presidency of Dr. Gordon Holmes. Sir Charles Sherrington was elected president at the program conference of delegates, held in 1933, but has been compelled to resign because of ill health. At the first morning session Prof. O. Marburg will preside over a discussion on the epilepsies, their etiology, pathology and treatment. The discussion will be continued in the afternoon under the chairmanship of Prof. O. Rossi. Other subjects are the physiology and pathology of the cerebrospinal fluid, under the chairmanship of Prof. O. Foerster; the functions of the frontal lobe, under the chairmanship of Prof. H. Claude, and the hypothalamus and the central representation of the autonomic system, under the chairmanship of Prof. H. Bronwer. The afternoons will be occupied with miscellaneous papers, which will be grouped systematically under various headings as far as practicable. The triennial Hughlings Jackson lecture will be delivered during the congress by Prof. O. Foerster. The secretary of the congress is Dr. S. A. Kinnier Wilson, 14 Harley Street, London, W. 1. All neurologists, neurosurgeons, psychiatrists and any physicians or surgeons interested in neurology may become active members on paying the fee of $7.50. Applications should be addressed to the secretary or through one of the national committees.

Cancer Research at the London Hospital

At the court of governors of the London Hospital, a report stated that while the committee was reluctant to refer to cancer research, lest false hopes be raised, it was only fair that the governors should be aware of the work that was being carried on in the cancer research laboratories. Dr. Lumsden has been working at the hospital for four years on the lines of evolving a specific body that would damage the cancer. The difficulty has been to discover an agent that would kill the cancer cells but not injure normal cells. Dr. Lumsden has evolved a serum with these properties. It has been obtained by implanting cancerous cells into an animal of a different species and obtaining serum from the blood of that animal. A stage has been reached in which the serum kills cancer cells removed from the human body without damage to normal cells similarly treated. A step further is that it is possible to implant cancer cells from one animal in another of the same species. The serum will kill the cancer so implanted. Further, it raises the resistance of the animals treated so that, the cancer having been cured, it is impossible to infect those animals again with cancer. At present the research workers are engaged in refining the serum and extracting the nonessential elements. But they emphasize that the cancer serum is only in its experimental stage and has not reached a point at which it can be tried on human beings.

Balconies for Babies in Apartment Houses

The Royal Institute of British Architects has issued a memorandum on the importance of including at least a small private balcony in working class and middle class apartment houses, large enough to take a cot for infants up to 2 years. The memorandum was submitted to the minister of health, who suggested its publication. It points out that the baby is essentially an outdoor creature and should start outdoor life to fit it for a partially indoor life. The critical years are from birth to 2 years. Fresh air is one of the first and essential preventives against colds, bronchitis, pneumonia, tuberculosis and rickets. The prevention of rickets is rendered more difficult in apartment houses without balcony accommodations. The balcony enables the mother to be within easy reach of the child and even to see it, while the roof or ground does not fulfil this requirement and the mother is therefore worried. The south is the best aspect, but east or west or even north is nearly as good. Direct sunshine is not essential and is sometimes too strong. High solid balconies are not desirable. Open wrought-iron balconies on a small plinth are the best. Some protection from cats and inclement weather is needed.

PARIS

(From Our Regular Correspondent)

Jan. 10, 1935.

The Crisis in the Medical Profession of Paris

The city of Paris forms the most important part of the department of the Seine, which has a population of nearly four million. The interests of the medical profession are looked after by an association to which all of the 4,000 physicians belong. In an address delivered Dec. 7, 1934, the president of this association stated that the medical profession of the department of the Seine was suffering in an unbelievable manner from the effects of the depression. From day to day receipts decrease while expenses increase. The private hospitals, of which there are a large number in Paris, laboratories of all kinds and physicians in private practice find that they are unable to balance their budgets. Some say that there are too many laboratories and private hospitals, dispensaries and foundations of every variety, which are exempted from taxes and which compete in an unfair manner with the practitioner. A form of medical poverty is developing as the result of too much state and private medical paternalism, which results in forcing many to abandon private practice and accept merely a living wage from the state. The property of six physicians has been sold to pay taxes, and five others, poverty stricken, committed suicide. The medical profession of the smaller cities and countryside is trying its best to encourage its colleagues in Paris to maintain their rights and to insist that state and private efforts to "starve out" the practitioner must be fought with every resource at their command.

At the same meeting at which this presidential address was delivered, Dr. Senechal stated that the defective social insurance laws were ruining the moral independence of the medical profession and dragging down to a condition of servitude the physician who tries to continue to carry on private practice.

The Budget of the Public Health Department

The budget for 1935 permits the department of public health of France to spend about 70 million dollars, of which 6 million represents costs of administration. The money in the budget can be divided into four groups. The first includes expenditures above 7 million dollars, such as 20 millions for aid to the aged, infirm and incurable, and 15 millions for encouragement of parents to raise large families. The former of these outlays cannot be reduced. Among the second group are included expenditures between 66 thousand dollars and 7 million dollars, which are distributed for such items as aid for orphans, for mothers who nurse their offspring, for dependents of soldiers, for maternity cases, for those who cannot pay for medical treatment, for the fight against tuberculosis, for premiums for births, for aid for tuberculous patients and for combating venereal disease. The other two groups include such items as aid to mothers and young children, better housing, vacation camps, physical education, nursing schools, cancer centers and inspection schools.

This list shows how complex is the present-day organization of a department of public health in a state in which many more persons receive government aid than is at present the case in the United States.

Can Finger Prints Be Changed?

Prof. L. Ribeiro, director of the bureau of identification at Rio de Janeiro, Brazil, in a paper read before the Paris Academy of Medicine, Dec. 18, 1934, reported his observations of changes in finger prints of lepers and those suffering from scleroderma and radiodermatitis. From a medicolegal and police point of view the Bertillon method of identification can still be considered infallible for all individuals except those included in the foregoing group of skin diseases. Ribeiro found that in 80 per cent of 200 cases of leprosy in both sexes there was more or less change in the papillary design. One can easily understand why this should occur in leprosy patients having involvement of the nerve trunks with ankyloses and secondary atrophies, ulcerations, scar formation or mutilating deformity of the fingers. But such alterations of print design is seen also without any apparent lesion of the hand or fingers in leprosy. Microscopic study of the skin of such patients revealed active lesions with presence of the typical bacilli of leprosy of Hansen. Examination of finger prints of lepers taken several years before at the bureau of identification of Rio de Janeiro failed to show any alteration before the individual was infected. In some cases, finger prints which show the typical leprosy changes become normal again after treatment.

Another disease that causes changes in finger print designs is scleroderma. During his visit in Paris, Professor Ribeiro found similar changes in cases of dermatitis due to roentgenographic work in older radiologists. He warns that one must always be on the watch for such changes in finger prints, owing to the fact that there are more than five million lepers in the world.

Blood Groups and Their Clinical Limitation

In a recent symposium before the Society of Comparative Pathology, Kossovitch said that human serum contained antibodies, termed agglutinins with respect to antigenic substances termed agglutinogens, contained in the human red corpuscles. Rode stated that the phenomenon of iso-agglutination had enabled the grouping of the blood in human beings. A study of these phenomena of agglutination (iso-agglutination in the same species and hetero-agglutination between different species) in wild animals may throw light on the disputed question of species. Anthropoid apes present several blood groups related to the classic ones found in the human being. Other apes show blood groupings that are alike in the same species but are less related to those of man. Domestic mammalia, with their many species, all show the phenomenon of iso-agglutination. The studies made of wild animals show that their blood is much more homogeneous than that of man or of the apes. Several species belong to the same blood group. As the result of the cross breeding and acquired variations that have given rise to domestic animals, the blood acquires properties of agglutination which were not present in their savage ancestors. Troisier enumerated the arguments, which show that the blood groupings are inflexible. There are four groups, which ought to be distinguished by letters to avoid confusion. One should speak of groups O, A, B and AB. Group O does not possess any globular agglutinogen, whereas group A possesses an agglutinogen A, and group B an agglutinogen B. Group AB, which is rare, contains both agglutinogen A and B. The agglutinins (in the serum) ought to be designated by the Greek letters alpha (that of group A) and by beta, the agglutin of group B. Both of these (alpha and beta) agglutinins are found in group O, but they are absent in group AB. Blood groups do not change as the result of physical or pharmacologic influence. Certain patients followed for years retain the same grouping. One of the best arguments in favor of the permanence of groups is that the properties A and B of the red corpuscles are predominant, being subject to the mendelian laws of heredity. There is an average permanence of groups in human beings all over the world. From thirty to a hundred days after transfusion of blood of a donor belonging to a different group, into a recipient of another group, one cannot distinguish any longer the red blood corpuscles of the recipient from those of the donor.

Emile-Weil and Lamy had never observed a change from one group to another. The Beth-Vincent method is almost

universally used to determine the group, by ascertaining whether or not the red corpuscles are agglutinated on a slide by two known serums. This method is not at all infallible, because of pseudo-agglutination and the possibility of overlooking true agglutination, which is slight. Such errors occur as the result of low temperatures, the presence of micro-organisms and insufficient dilution of the serum. One should use only serums that have been comparatively recently obtained and whose activity has been controlled. One should never be content to employ only two serums but should take three belonging respectively to group A (Moss group 2), group B (Moss group 3) and group O (Moss group 4). By using the serum of the last named group, one can verify the activity of the other two groups and thus avoid the most common source of error.

Tzanck believed that transfusion accidents are the result of faulty technic, because the blood groups themselves never change. The slight or, less frequently, the more serious reactions are not explained by the use of universal donors, of anticoagulants or of various forms of apparatus. In a certain number of cases the only explanation is that of an innate or acquired hypersensibility of the recipient. This is especially true when the blood of the same donor has been previously employed without any reaction. Such exceptions do not invalidate the law of the permanence of blood groups. The Beth-Vincent method still seems to be the best. Pseudo-agglutination can be excluded by the Falgairoilles kaolin or the Lattes lecithin tests.

Panisset stated that groups are observed in domestic animals, but it has thus far been possible to identify only four groups in horses. Georges Rosenthal was of the opinion that the property of agglutination, which is the basis of blood grouping, can present some variations, even though this may rarely occur. Vignes maintained that accidents even in the absence of blood grouping are infrequent. His observations are based on a large number of transfusions, without grouping, in cases of obstetric hemorrhages and in those seen in the new-born. Servantie found that even though citrated blood had been kept in a refrigerator for eight to twelve weeks there was no change in the blood grouping.

Opening of International Chemical Building in Paris

The opening of the International Chemical Building took place Dec. 2, 1934, in the presence of some of the most distinguished chemists and representatives of the French government. At the time of the celebration of the one hundredth anniversary of the birth of the French chemist Marcelin Berthelot, Oct. 25, 1927, committees were appointed in all countries to raise funds for the construction of a building instead of a monument to commemorate the services of this benefactor of humanity. Nearly a million and a half dollars was contributed, of which nearly $700,000 is credited to the efforts of foreign members of the profession of chemistry. Great Britain and the United States contributed the major portion of the amount raised outside of France. The object of the construction of the building is to have it serve as an international center for chemists. It does not contain any laboratories but will serve only as a meeting place. In addition to committe rooms there are rooms for conferences large enough to seat 500 persons, a banquet hall with a capacity of 450, and a large auditorium with a seating capacity of 800. The organization includes five sections: reference library, publication, scientific and technical information, economic information and a section for chemical research questions. All branches of chemistry will be represented in the organization of the work of the institution. The committee in charge of the foundation includes representatives of the Institute of France, International Chemical Society and Academy of Medicine.

BERLIN

(From Our Regular Correspondent)

Dec. 17, 1934.

Vaccination Incisions and Smallpox Immunity

In Germany, the demand that vaccination incisions be shortened and their number reduced gave rise to an order by the federal minister of the interior in April 1934 to the effect that, instead of four incisions under 1 cm. in length, only two shallow incisions 3 mm. long should be made. But the least annoyance to the person vaccinated is not the only consideration. It is important that the immunity of the population to smallpox be adequately preserved. There are two sets of opposed opinions. According to one opinion, the slightest vaccinal infection produces complete immunity to smallpox. The other opinion is that, within certain limits, the degree of the immunity depends directly on the intensity of the vaccinal infection. Interesting experimental data on this question are obtained if one studies revaccination in a group of people in whom the intensity of the first vaccination is known. Professor Groth, director of the Bavarian Landesimpfanstalt in Munich, and Dr. Münsterer proceeded in this manner. They chose the school children of Munich, who must be vaccinated at the age of 12 years, so that about ten years intervenes between the first vaccination in early childhood and the revaccination at age 12. In 1932 approximately 9,300 school children were examined; in 1933, 7,800. Their investigation revealed that, with the increasing number of scars from the first vaccination, the reactions from the revaccination of the first vaccinal type decrease, the early reactions increase, and the revaccination index is lowered. The natural conclusion is that the vaccinal immunity—the protection against infection with variola—in the 12-year-old children is less, the fewer scars from the first vaccination are present. The investigations revealed plainly how weak the protection was in children who presented only one scar. These investigations brought out also that vaccinal immunity increases with increasing length and greater surface of the scars. The immunity is especially poor in children presenting very small scars; but there are slight or no differences in the degree of immunity afforded by the middle values as to length and surface area. The degree of variolous and vaccinal immunity depends to a greater extent on the number of pustules than on the size of the pustular surface. With a given length of scar or extent of scar surface, a greater vaccinal immunity is obtained, the more separate incisions and separate surfaces there are. On the other hand, no relations between distinctness of the first vaccinal scars and the degree of vaccinal immunity could be established. It appeared that shallow incisions just penetrating the surface of the skin induced the same degree of immunity as was induced by the deeper incisions, provided the necessary number of insertions and the required pustular area are preserved.

These observations reveal the incorrectness of the view that the number of the vaccinal incisions does not influence the degree of immunity and that one or two vaccinal pustules have the same immunizing effect as several pustules. The variolous and vaccinal protection is inadequate with a first vaccinal scar and a total scar surface of less than about 4 cc. on the smallpox patient and the revaccinated person. The securing of a reliable smallpox immunity demands at least three vaccinal incisions from 3 to 5 mm. long for the first vaccination and from 5 to 8 mm. long in revaccinated persons. According to this research, these specifications constitute the lower limit beyond which the infecting vaccinal dosage, measured by the number and length of the incisions, may not be reduced without endangering the immunity of the population against smallpox. Increasing the number of incisions to that formerly required

in Germany (four) would not, to be sure, increase the number of general vaccinal disturbances, nor would it increase the immunity of the population to smallpox. Reduction of the number of incisions to two leads to a decrease of immunity, while it does not lessen the number of untoward symptoms. Reduction of the incisions to one, the authors state, is not to be considered, in spite of the fact that the course of the vaccination would be less severe, for the reason that the immunity conferred would be entirely inadequate.

Stations for the Treatment of Hydrophobia

According to the federal bureau of health, the year 1933 showed a marked increase in the frequency of bites by hydrophobic and suspected animals. In 1933 the number of bite injuries was twice that of 1932 (132 as against 64 in 1932). There were two fatal cases, neither of the patients having received Pasteur treatment. Likewise the number of treatments at the Pasteur stations increased (153 as compared with 97 in 1932). The bite injuries for which treatment was instituted were thus distributed in part: 105 cases (69 per cent) from dogs, thirty cases (20 per cent) from cats, and one case each from ruminants and miscellaneous animals. In seven cases the persons concerned were not actually bitten but had come in contact with the saliva of a person who died from hydrophobia and received protective treatment as a precaution. The incidence of bite injuries caused by cats increased by 10 per cent.

In thirty-six animals (25 per cent) the presence of hydrophobia was shown experimentally and in six animals (3.9 per cent) only clinically. In seventy animals (46 per cent) there was only a suspicion of hydrophobia, and in forty-one the suspicion was afterward proved to be unfounded. Hence, in only 27 per cent of the persons bitten was there any serious danger of infection. In 116 cases the bite affected merely the skin. In eighty-three persons, treatment was instituted during the first four days after the injury. As a rule, the Högyes-Phillips method is employed for the protective inoculation, and in one institute the Semple method is used. None of the persons receiving specific treatment contracted hydrophobia, which shows the effectiveness of such treatment when properly applied. No evidence of paralysis or other sequels developed as a result of the inoculations, as was likewise the case in the persons treated the previous year.

BUDAPEST

(From Our Regular Correspondent)

Jan. 21, 1935.

Regulating the Cosmetic Industry

The Hungarian ministry of commerce has issued an order in regard to the cosmetic industry, defining the sphere of activity of the industry as the care of the beauty of the healthy skin, the glossing over of its defects and the stopping of these defects, with certain restrictions. Cosmeticians must not deal with skin manifestations that point to some disease; for instance, they must not treat rashes, pustules, swellings, herpes, facial paralysis or skin and scalp diseases. They must not perform any intervention consisting of the penetration into or passing through the skin; e. g., removal of superfluous hairs, warts, moles or freckles; they must not use x-ray apparatus, ultraviolet rays or diathermy apparatus. Cosmeticians who were licensed prior to the publication of this law may continue to use their galvanic current sets or their quartz lamps, but exclusively for the removal of superfluous hairs and warts. The enactment emphasizes that barbers and manicures may carry on activity into the sphere of the cosmetic industry only if they obtain a special license. Cosmeticians must not use the doctor's title or any designations pointing to this even if this title is legally due them. In the offices of cosmeticians, medical consulting rooms must not be maintained.

The Public Health in Hungary

Professor Dr. Cornelius Scholtz, chief of the Hungarian public health department, read a paper at the recent meeting of the Royal Medical Society on the progress made in public health affairs in the years following the war. He said that Hungary's progress is enormous. At present 83 per cent of all childbirths take place with the assistance of well trained midwives. Fifty-four per cent of all midwives take postgraduate studies. Since the war, tuberculosis dispensaries have been established even in the most remote places; their number has grown from twenty-five to seventy-three. Nine new venereal disease dispensaries have been opened. The number of hospital beds has increased to 40,000, and outpatient treatment has made considerable progress in consequence of the introduction of the sanitary nursing service. Physicians in abundance are in all parts of the country, there being a decided overproduction of physicians, the detrimental effects of which are already manifesting themselves. The mortality rate has decreased from 23.3 to 15.3 per thousand and the mortality rate of tuberculosis has fallen from 3.2 to 1.9 per thousand.

Restrictions on the Advertising of Ethical Preparations

The new medical practice act forbids advertising to the public of ethical pharmaceutic preparations. Drugs and fine chemicals listed as official drugs must not be advertised in lay journals or on posters or leaflets distributed to the public; they can be advertised only in the professional press. The publication of communications that contain the results of experimentation with a new drug or with a new therapeutic method is regarded as an offense against medical ethics, be it laudatory or critical. Interviews must not be given about the action of new drugs under experimentation for newspapers. Reports on new preparations should be made by the clinic; to wit, only once, at the time of the introduction of the preparation in question, and only in professional journals. Exception may be made in sensational discoveries; in such cases leaders of clinics, when interviewed by the lay press, may give information, but even then without mentioning any individual names.

A Play Based on the Life of Semmelweis

In Vienna, a play has been produced with the title, "Dr. Semmelweis," from the pen of Hans Refisch. The plot was taken from the life of the immortal physician. The drama deals with his struggles and the misjudgment of him by his colleagues. This drama has been produced only in Vienna, which failed to appreciate Semmelweis, seeing in this benefactor of humanity only a charlatan and driving him away. The play as a literary work is not well done, because it consists of long dialogues and tedious scientific disputes. Nevertheless the audience liked it. The leading literary reviews of western Europe have dealt with it meritoriously.

Prof. Vilmos Tauffer

Prof. Vilmos (William) Tauffer, a teacher of obstetrics and gynecology at the University of Budapest, died in his eighty-third year. Tauffer was the first in Hungary to perform an operation for appendicitis and the first to propagandize social ideas in connection with the problems of maternity. He was the first surgeon anywhere to sew together successfully a severed ureter. During his retirement he prepared the draft of the law on the protection of maternity. Professor Tauffer had rectal cancer. His friends recommended an operation and under persuasion from his family he seemingly consented; but, knowing that his case was hopeless, he put an end to his life with a revolver.

BELGIUM

(From Our Regular Correspondent)

Jan. 14, 1935.

Regulating the Sale of Drinking Waters

The *Moniteur belge* has published the new regulations pertaining to the control of the sale of drinking waters. With a view to preventing, in the interest of public health, various deceptions and adulterations, the government authorities are empowered to control (1) the collection, the treatment, the preparation and, in general, all the operations concerned in the exploitation of mineral waters and drinking waters; (2) the manufacture of artificial drinks and artificial ice, and (3) the trade in artificial ice and natural ice.

The importation of the products mentioned may be subjected to conditions to be determined by royal decree.

Unless previous authorization of the government is secured, no one will be permitted to designate a brand of drinking water by the name of the locality whence the water originates, nor may any designation formed from such name be employed.

The representatives of the government charged with the enforcement of this law and of the decrees promulgated in this connection shall have, at all times, ready access to the sources of supply, and to the places of manufacture and sale.

Longevity of Physicians

In *Bruxelles-médical,* M. Schachter takes up the subject of the longevity of physicians. Statistics based on necrologic reports concerning eminent physicians show that they are, as a class, long lived. Not long ago Maurice Genty pointed out that, whereas the average age of members of the Academy of Medicine in 1852 was 58 years, in our day the average has increased to 69 years, which appears to indicate that the great physicians derive a profit from their art in the form of prolonged lives.

The author has collected biographic data of 2,582 physicians, all of them well known through the medical literature.

Distribution of the 2,582 Physicians According to Age Groups, and the Number and Percentage of Deaths in Age Groups

Age Groups	No. of Deaths in Group	Percentage of Deaths in Group
21-30 years	51	1.97
31-40 years	143	5.53
41-50 years	274	10.61
51-60 years	481	18.62
61-70 years	639	24.63
71-80 years	648	25.44
81-90 years	311	12.04
91 years and above	35	1.35

The table shows the distribution of the 2,582 physicians according to age groups, and the number and percentage of deaths in age groups. Adding together the percentage of the age groups comprising the years 60 to 90, a total of 61.84 per cent is obtained, which demonstrates the frank longevity of physicians.

The Oldest Medical Society of Belgium

In celebrating the centenary of the Société royale de médecine of Ghent, the oldest medical society of Belgium, the physicians of Ghent pointed out the vitality of Flemish medicine during the course of the nineteenth century. In a comprehensive address, Mr. Van Cauwenberghe, president of the society, recalled the many changes brought about by science in the art of medicine during the nineteenth century. He then spoke of the modifications brought about by the times, the usages, and the mechanical inventions, in the life of the physician, particularly the rural physician.

THE FUTURE OF SURGERY

In his address, Professor Leriche of Strasbourg discussed the modern trends and the future of surgery. At the basis of the modern trends of surgery lies the fact that Pasteur's law and the discipline morganienne, which governed medicine in the nineteenth century, are no longer valid in all parts of the immense domain of pathology. In many cases a disease is neither the result of a microbic invasion nor the manifestation of an anatomic lesion of an organ. It is the clinical eruption, so to speak, of an old modification (scarcely abnormal) of some mechanism of habitual regulation.

Vasomotor disorders—slight peripheral nervous lesions without apparent importance—may disturb the organs. Associated with the ligaments of the knee, for example—which appear to be only a means of holding bones in place—there is an abundance of nerve fibers. Traumatism need only bruise slightly these nerve terminals, and almost immediately there appear rigidity, local increased temperature, functional weakness, muscular atrophy, rarefaction of the bones and articular effusions, all of which have been engendered by the excitations carried to the sensory apparatus of the joints.

Physiology shows how interdependent all the phenomena of life are. In the human organism, reciprocity is the watchword. A given organ does not function properly from the motor point of view unless its humoral surroundings are to its liking, and that in turn depends on the adjacent organs. A disturbance brought about in one organ, even for an instant, may produce in another organ a profound change in the secretory rhythm.

If one will analyze carefully pathologic phenomena from a physiologic point of view, one will discover that most pathologic processes are, at the start, diseases of the tissues or systemic diseases, and not diseases of the organ.

Gastric ulcer and vesicular lithiasis, before manifesting themselves clinically, have had a long mute stage. It was the disordered function that created gradually the organic disease. A suitable therapy should be able to modify this mute stage.

Surgery of the sympathetic nervous system is not a term covering the technic of a few exceptional operations; it may be applicable to all diseases in which vasomotor phenomena and the disorders of nutrition of the tissues play a predominant part. It has a magnificant future. With its aid, one can at least favorably modify most types of Raynaud's disease, most sclerodermias, the hyperhidroses, all the causalgias (for which there was previously no remedy), angina, and 50 per cent of the cases of asthma. With its help the long sequels of posttraumatic disorders, without fractures, can be suppressed, certain types of arthritis can be cured, the more grave symptoms of facial paralysis can be relieved, certain spasticities can be diminished, the condition of children affected with megacolon can be transformed, and the like. From the results secured thus far one may judge of the future.

Surgery of the sympathetic nervous system is destined to become endocrinonervous surgery. It will be utilized in the therapy of diseases of the tissues and of diseases of nutrition. It will open up a new branch: surgery of the connective tissue and the elastic tissue.

Eye Complications, Tryparsamide and Trypanosomiasis

Addressing the Société belge de médecine tropicale, Vandenbranden and Appelmans reported that examination of their statistics of trypanosomiasis cases treated with tryparsamide revealed that about 20 per cent present eye complications, and that these conditions are especially frequent in patients with changed cerebrospinal fluid. The discovery of eye symptoms necessitates the discontinuance of arsenical treatment, as they are due to the fixation of arsenic in a nervous system sensitized by endotoxins resulting from the destruction of trypanosomes. With atoxyl the disorders are more grave; with tryparsamide the cessation of treatment checks the eye complications. The visual apparatus should therefore be closely watched during treatment.

MADRID

(From Our Regular Correspondent)

Dec. 28, 1934.

Second Centennial of the Academy of Medicine

The Academia Nacional de Medicina of Madrid celebrated recently its second centennial. The festivities included several meetings during the medical week and an exhibition of the books of the library, which has, among other books of great importance, the Codex scientiae medicinae of Avicenna, in five large volumes; the Regiomonte tabule directionum, printed in 1504; El uso de los anteojos para todo género de vistas, a book written by Daza Valdes, and one by Martin Martinez, and a collection of books written by Hipolito Ruiz on American plants, which for more than three centuries were a source of information for botanists and designers from all over the world.

Dr. Ara, professor of anatomy of the Faculty of Medicine of Madrid, spoke on the progress of anatomy, especially in Spain, during the sixteenth to the eighteenth century, which was due to the work of Servetus and Vesalius. The eighteenth century was remarkable in its progress, thanks to the devotion of anatomists to dissection, which then was a cult of ambitious workers, who were misunderstood and persecuted by the populace. Workers who wanted to see a dissection paid for an entrance fee to the dissecting room, and the fee was higher if genital organs were to be dissected. The first illustrated anatomy published was that of Juan de Arfe de Villafané. The magnificent anatomic slides made in Spain by Crisostomo Martinez and by Antonio Palomino de Velasco are still considered a prize by the libraries that have them. Palomino used to say that the application of anatomy to painting and sculpture should be moderate, in order to retain the naturalness of the pictures produced. Piquer, Virgili, Gimbernat and Bonells y Lacaba are great figures in the progress of anatomy in Spain at the last quarter of the eighteenth century. The anatomy written by Bonells y Lacaba was published at the closing of the eighteenth century. Ramón y Cajal had a favorable opinion of this anatomy.

Dr. Garcia del Real, professor and academician of the Academia Nacional de Medicina, spoke on the foundation of the Colegio de San Carlos, now the school of medicine of Madrid, which was established in the epoch of Gimbernat, a scientist whose renown was as well earned as that of Michael Servetus and Ramón y Cajal. Military surgery had been so badly neglected in Spain during the eighteenth century that foreign surgeons had to be hired during military activities. Fortunately by that time Pedro Virgili took courses in universities in other European countries, returned to Spain and established a college of surgery in Cadiz, another in Barcelona, and later a college in Madrid.

Dr. Marañon, academician of the Academia Nacional de Medicina and successor of Ramón y Cajal in the Academia de Ciencias, delivered a lecture on the medical, political and social conditions of Spain in 1734, at the time of the foundation of the academy. The eighteenth century produced great scientists elsewhere in Europe but few in Spain. Dr. Marañon deplored the fact that Spaniards do not devote themselves seriously to science, although they have the ability. He said that the cooperation of scientists rather than the isolated contributions of a few mark the progress of science. That is why scientific associations, meetings and especially reunions are of value for the unfolding of new ideas and the review of old ones. There is a stimulation to present subjects worthy of discussion at meetings, and during the discussions every member endeavors to prove views aiming toward the progress of medicine.

The closing session was presided over by Martínez de Valasco, representing the government, and attended by the ambassadors of Argentina, Austria, Belgium, Brazil, Chile, Czechoslovakia Denmark, England, France, Germany, Italy, Mexico, Peru, Portugal, Switzerland, the United States and Venezuela. Dr. Mariscal, secretary of the academy, the official speaker, reviewed the evolution of the academy, which helps the government and the city to solve problems of hygiene, medicine, prevention and control of epidemics, expert testimony in medicolegal cases, and many others. The academy also administers donations given to it for scientific or philanthropic purposes, such as the establishment of prizes for special work, of chairs for certain subjects not supported by the income of the municipality, and of scholarships both for the study of medicine in the country and of postgraduate courses abroad, as well as for the establishment of pensions for retired physicians, for widows and for minor orphans of physicians. The speaker recalled that, during the occupation of Madrid by the army of Napoleon, the physicians of the French army requested admission into the academy. Their request was granted and Larrey, Napoleon's physician, read before the academy a paper on the origin of colic in Madrid, which was shown to be caused by plumbism, as lead pipes were used to carry the water supply. Larrey's article is still in the files of the academy. When Dr. Mariscal ended his speech, two academicians, the youngest among the group, presented the ambassadors with the diplomas of honorary academicians conferred on the scientists of their respective countries as follows: Drs. Avelino Gutierrez and Bernardo A. Houssay of Buenos Aires, Annes Dias of Rio de Janeiro, Menkeberg of Santiago, Tomás Gutierrez Perrin of Mexico, Honorio Delgado of Lima, Walter Bradford Cannon of Harvard University and Rudolph Matas of New Orleans and Rafael Gonzalez Rincon of Caracas. The ambassadors made speeches acknowledging the honor conferred on their fellow citizens.

In connection with the celebration, two events deserve special mention, the first of which was the unveiling of a memorial plate in the house in which the academy was first established, which at that time was at 19 Montera Street. The plate reads: "This is the house of Dr. José Hortega Hernandez, where the Academia Medica Matritense was established, Sept. 13, 1734. The same academy, which now has the name of Academia Nacional de Medicina, in commemoration of the second anniversary of its foundation unveils this memorial plate, Sept. 13, 1934." The second event was a controversy in the press between a member of a national scientific center and the members of the academy with regard to the years of existence of the academy. The Academia Nacional de Medicina was established in the eighteenth century by Philip V to obtain aid in solving problems of alimentary hygiene, in the selection of places to found settlements in foreign possessions of Spain, and to solve other problems. Dr. José Cervi, the first president of the academy, was appointed by the king. Since then the academy has had in its membership the most brilliant intellects in Spain.

Dr. Florestan Aguilar

The odontologist Dr. Florestan Aguilar of Madrid died recently. He was educated in the United States and on returning home to practice spent his life doing good for others. When Russian dentists were in distress after the revolution, a fund was collected in several countries, especially in the United States, by the League for the Relief of Russian dentists and their families. Dr. Aguilar was appointed by the league to distribute that money and he went to Russia to fulfil his duty. He was the dentist to the royal family and was the founder of the University City of Madrid and of the Sociedad Odontologica Española and of the Escuela Nacional de Odontología. He was an academician of the Academia Nacional de Medicina of Madrid and honorary member of societies of odontology all over the world, and the founder of several dental journals.

Marriages

JOHN STEWART HOWE, Deadwood, S. D., to Miss Myra Gerichs Hicks of Dickerson, Md., in Washington, D. C., Dec. 26, 1934.

LELAND POMAINVILLE, Wisconsin Rapids, Wis., to Miss Margaret Currier of Port Edwards, at Sauk City, Nov. 24, 1934.

IRWIN GRIER LINTON, Washington, D. C., to Miss Nancy McMorries Moffatt of Due West, S. C., Dec. 29, 1934.

WILLIAM ALBERT PRIDEAUX JR., Claysville, Pa., to Miss Thelma Taring of Aberdeen, Md., Oct. 31, 1934.

FLOYD SHOCK FRANKLIN, West Haverstraw, N. Y., to Miss Katherine Denoyelles of Haverstraw, January 5.

ARTHUR CLAYTON SINTON JR., to Mrs. Virginia Chesterman Wickham, both of Richmond, Va., January 15.

THOMAS PRESTON MCKEE, Saltville, Va., to Miss Rose Clifton of Clarksburg, W. Va., January 12.

GERALD BERNARD HARRIGAN, New York, to Miss Dorothy Atkinson, in Harrison, N. Y., January 31.

HENRY SHIRLEY MILLETT, Brooklyn, to Miss Annie Ostrom Alexander, of New York, February 11.

RALPH M. FISHER, Weston, W. Va., to Miss Dorothy Mae Johnson of Perry, Iowa, recently.

HENRY JOHN ZIMMER, Mishawaka, Ind., to Miss Ruth L. Gygi of South Bend, January 16.

GLEN V. RYAN to Miss Virginia Gayle Wilson, both of Indianapolis, Sept. 23, 1934.

SAM GILMORE SAUNDERS to Miss Katherine Easley, both of Loudon, Tenn., January 17.

EDWIN J. DE COSTA to Miss Mari Helene Bachrach, both of Chicago, January 5.

JOHN E. DEES to DR. MYRTA SUSAN COONS, both of Baltimore, January 7.

CHARLES E. VESTLE to Miss Alma Baskett, both of Holton, Kan., recently.

Deaths

John Edwards Summers ⊕ Omaha; College of Physicians and Surgeons Medical Department of Columbia College, New York, 1881; following graduation he entered the army as acting assistant surgeon and was on duty at frontier posts in Wyoming nearly two years; professor of clinical surgery, University of Nebraska College of Medicine; past president of the Nebraska State Medical Association and the Medical Society of Missouri Valley; member and past president of the Western Surgical Association; member and in 1916 vice president of the American Surgical Association; fellow and member of the board of governors of the American College of Surgeons; formerly surgeon in chief and senior surgeon to the Clarkson Hospital and for many years chief surgeon to the Douglas County Hospital; on the staffs of the Immanuel and Wise Memorial hospitals; author of "Modern Treatment of Wounds"; aged 77; died, February 7, of heart disease.

Roger Herbert Dennett ⊕ New York; Harvard University Medical School, Boston, 1902;; professor of clinical pediatrics, New York Post-Graduate Medical School; member of the American Academy of Pediatrics; director of the pediatric service and attending pediatrician to the Post-Graduate Hospital; attending pediatrician to the Reconstruction Hospital Unit; consulting pediatrician to the Willard Parker, West Side and Broad Street hospitals, New York, the Passaic (N. J.) General Hospital and the Hackensack (N. J.) Hospital; trustee to St. Lawrence University, Canton; aged 58; died, February 3, of heart disease.

Alexander Dunbar McKelvey ⊕ Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1908; member of the Massachusetts Medical Society, American Academy of Ophthalmology and Oto-Laryngology and the New England Otological and Laryngological Society; fellow of the American College of Surgeons; on the staffs of the Wellesley Hospital, St. John's Hospital for Women and Toronto East General Hospital; aged 49; died, January 6, of heart disease.

Gottlob Augustus Neuffer, Abbeville, S. C.; Medical College of South Carolina, Charleston, 1884; member and past president of the South Carolina Medical Association; past president of the Abbeville County Medical Society; formerly member of the state legislature; on the staff of the Abbeville County Memorial Hospital; trustee to his alma mater; aged 73; died, January 2, of coronary thrombosis.

Timothy Francis Donovan, Buffalo; Columbia University College of Physicians and Surgeons, New York, 1909; served during the World War; formerly instructor in surgery, University of Buffalo School of Medicine; at various times on the staffs of the City Hospital and the Millard Fillmore Hospital; aged 50; died, January 31, in a hospital at New York, of gastric ulcer and pneumonia.

Harold Jolly Beard ⊕ Youngstown, Ohio; Kentucky School of Medicine, Louisville, 1901; past president of the Mahoning County Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 54; on the staff of the Youngstown Hospital, where he died, January 30, of dilatation of the heart and cerebral hemorrhage.

Andrew Watson Goodwin ⊕ Raleigh, N. C.; Bellevue Hospital Medical College, New York, 1887; formerly professor of diseases of the skin and genito-urinary system, University of North Carolina School of Medicine; demonstrator and professor of anatomy, Leonard Medical School; aged 71; died, Dec. 15, 1934, of endocarditis and influenza.

Anthony J. Giordano ⊕ New York; Fordham University School of Medicine, New York, 1920; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 37; on the staffs of the Sexton Hospital and Columbus Hospital Extension, New York, and St. Joseph's Hospital, Yonkers, where he died, January 23, of pneumonia.

James Davidson Bozeman, Fort Worth, Texas; University of Alabama School of Medicine, 1910; member of the State Medical Association of Texas; served during the World War; vice president of the staff and resident to the Arlington Heights Sanitarium; aged 47; died in January of peritonitis as the result of a ruptured appendix.

Louisa Teresa Black, Denver; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; secretary-treasurer of the Colorado Society of Clinical Pathologists for many years; aged 68; for many years on the staff of the National Jewish Hospital, where she died, January 8, of pulmonary embolus.

Charles Edwin Durant ⊕ Haverhill, Mass.; Harvard University Medical School, Boston, 1885; fellow of the American College of Surgeons; formerly member of the school board; for many years on the staff of the General Stephen Henry Gale Hospital; aged 72; died, January 19, of heart disease.

Cornelius Thomas Devine, Redondo Beach, Calif.; University of California Medical Department, San Francisco, 1907; served during the World War; at one time on the staff of the Providence Hospital and the Highland Hospital, Oakland; aged 54; died, January 21, of angina pectoris.

Justin Guy Ballou ⊕ Oakharbor, Ohio; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; past president of the Ottawa County Medical Society; mayor of Oakharbor; served during the World War; aged 52; died, January 29, of pneumonia.

Alfred Ashton Johnson, New York; University and Bellevue Hospital Medical College, New York, 1925; member of the Medical Society of the State of New York; clinical assistant and visiting surgeon to the Bellevue Hospital; aged 32; died, January 21, of heart disease.

Heber Olney Tucker ⊕ Santa Barbara, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1929; served during the World War; on the staffs of the Cottage Hospital and St. Francis Hospital; aged 38; died, Dec. 19, 1934, of bronchopneumonia.

Marion O. Fulcher, Waynesboro, Ga.; University of Georgia Medical Department, Augusta, 1892; member of the Medical Association of Georgia; veteran of the Spanish-American War; aged 64; died suddenly, January 16, of carcinoma of the esophagus.

George Bowman, Irwin, Pa.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; member of the Medical Society of the State of Pennsylvania; aged 60; died, January 24, in the Mercy Hospital, Pittsburgh, of pneumonia.

George Moses Davis, Manchester, N. H.; Dartmouth Medical School, Hanover, 1889; member of the New Hampshire Medical Society; formerly on the staff of the Sacred Heart Hospital; aged 70; died, January 14, of cerebral hemorrhage.

George Benson Kelso, Bloomington, Ill.; University of Michigan Homeopathic Medical School, Ann Arbor, 1886; member of the Illinois State Medical Society; aged 74; died, January 27, in St. Petersburg, Fla., of coronary thrombosis.

Henry R. Diessner, Waconia, Minn.; Hahnemann Medical College and Hospital, Chicago, 1883; formerly member of the state legislature; aged 81; died, January 11, in St. Barnabas Hospital, Minneapolis, of arteriosclerosis and heart disease.

Frank Abbott Dwight, Filer, Idaho; Jenner Medical College, Chicago, 1897; member of the Idaho State Medical Association; aged 65; died, Dec. 27, 1934, in the Twin Falls (Idaho) General Hospital, of chronic myocarditis and uremia.

Truman G. Burris, Conway Springs, Kan.; Northwestern Medical College, St. Joseph, 1893; member of the Kansas Medical Society; aged 64; died, January 10, in a hospital at Wellington, of pulmonary and cerebral emboli.

Joseph A. Kowalewski, Barling, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1923; served during the World War; aged 44; died, January 17, as the result of injuries received in an automobile accident.

Stanley James Tilghman ✠ Easton, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921; aged 36; died, January 14, as the result of an automobile accident.

Edwin Kilyan Dunkel, Jersey City, N. J.; Jefferson Medical College of Philadelphia, 1899; aged 70; died, Dec. 7, 1934, in the New Jersey State Hospital, Greystone Park, of cerebral arteriosclerosis and myocarditis.

Frederick Byron Stellwagen, Weehawken, N. J.; Albany (N. Y.) Medical College, 1894; aged 68; was killed, January 9, in Las Vegas, Nev., when the automobile in which he was driving overturned and burned.

Virgil Lynn Pascoe, Newark, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; member of the Arkansas Medical Society; aged 63; died, January 28, of lobar pneumonia.

Wilbur M. L. Beatty, Centerburg, Ohio; Starling Medical College, Columbus, 1890; aged 73; died, January 30, in the Mount Vernon (Ohio) Hospital-Sanitarium, of cardiovascular-renal disease.

Kenneth Gordon Mowat, Buffalo; University of Buffalo School of Medicine, 1924; on the staff of the Millard Fillmore Hospital; aged 49; was found dead in bed, January 13, of heart disease.

Charles Clifton Tucker ✠ Blackstone, Va.; University College of Medicine, Richmond, 1903; on the staff of the Southside Community Hospital, Farmville; aged 59; died, January 28, of arthritis.

Clarence Henry Dobson ✠ Brookline, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1897; served during the World War; aged 65; died, February 1, of coronary thrombosis.

John Oatley Caldwell, Sharon, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1921; member of the Massachusetts Medical Society; aged 49; died, January 19, of pneumonia.

Leigh Maupin, Hodgenville, Ky.; Hospital College of Medicine, Louisville, 1897; member of the Kentucky State Medical Association; aged 62; died suddenly, January 12, of heart disease.

Merle K. Scott, Pittsburg, Kan.; University Medical College of Kansas City, 1901; member of the Kansas Medical Society; aged 56; died, Dec. 10, 1934, of carcinoma of the rectum.

William Wallace Kirtz Beasley, Windsor, Ont., Canada; University of Western Ontario Medical School, London, 1931; aged 30; died, January 26, as the result of a fall from a train.

Clarence Delos Crutcher, Los Angeles; University of Nashville (Tenn.) Medical Department, 1886; aged 74; died, Dec. 12, 1934, in the Los Angeles County Hospital, of uremia.

Walter Brooks Brouner, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; aged 65; died, January 1, of cardiorenal disease.

David Perkins Oldham, Mount Juliet, Tenn.; University of Tennessee Medical Department, Nashville, 1901; aged 73; died, January 22, of carcinoma of the liver and gallbladder.

John Nelson Coolidge, Ottawa, Ont., Canada; Harvard University Medical School, Boston, 1894; member of the Massachusetts Medical Society; aged 68; died, January 8.

William Emmett Allen, Harrodsburg, Ky.; Hospital College of Medicine, Louisville, 1903; aged 54; died, Nov. 2, 1934, of shock following an operation for intestinal obstruction.

Franklin Leeds Leister, Rochester, Minn.; American Medical College, St. Louis, 1897; served during the World War; aged 65; died, January 12, of carcinoma of the throat.

William Jacob Baumgartner, Philadelphia; Jefferson Medical College of Philadelphia, 1893; also a pharmacist; aged 64; died, Dec. 9, 1934, of cerebral hemorrhage.

George Henry McGuffin, Cooksville, Ont., Canada; University of Western Ontario Medical School, London, 1930; aged 28; was killed, Dec. 24, 1934, in a train wreck.

Frederick Earl Cole, Denver; Denver and Gross College of Medicine, Denver, 1908; formerly on the staff of St. Anthony's Hospital; aged 50; died, January 7, of pneumonia.

John Wilson Strother, Grayson, Ky.; Miami Medical College, Cincinnati, 1876; bank president; aged 83; died, January 8, in the Stovall Memorial Hospital, of senility.

Charles Daniel Toole, Detroit; University of Michigan Homeopathic Medical School, Ann Arbor, 1915; aged 49; died suddenly, Dec. 12, 1934, of heart disease.

Mac Crellous Price Sporman, Manatee, Fla.; Atlanta College of Physicians and Surgeons, 1913; aged 42; died, January 1, of a self-inflicted bullet wound.

Ezekial Z. Hurst, Alma, Ga.; University of Georgia Medical Department, Augusta, 1917; aged 41; died, January 5, of chronic nephritis and myocarditis.

Bayard Knerr, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1898; aged 58; died, January 9, of a self-inflicted bullet wound.

Chalkley Justice Kille, Moorestown, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1878; aged 79; died, Dec. 25, 1934, of nephritis.

Samuel Patenaude, Lowell, Mass.; University of Vermont College of Medicine, Burlington, 1884; aged 72; died, January 10, of lobar pneumonia.

Arthur Irvine McCalla, Calgary, Alta., Canada; University of Toronto Faculty of Medicine, 1911; aged 48; died, January 16, of pneumonia.

Talbot Jones, Pasadena, Calif.; Bellevue Hospital Medical College, New York, 1878; aged 84; died, Dec. 2, 1934, of mitral stenosis and hypertension.

John Peak Sobey, Mentor, Ohio; Homeopathic Hospital College, Cleveland, 1877; also a pharmacist; aged 84; died, January 9, of pneumonia.

Jacob Gomber, Goodman, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; aged 60; died, January 23, of carcinoma.

William V. Hausherr, Florence, Wis.; Michigan College of Medicine and Surgery, Detroit, 1898; aged 63; died, January 22, of pneumonia.

Marcenos H. Cole, Newfane, N. Y.; University of Buffalo School of Medicine, 1874; aged 89; died, Nov. 30, 1934, of cerebral hemorrhage.

Samuel Ellsworth Ambrose, Rural Valley, Pa.; Baltimore Medical College, 1898; aged 70; died, January 4, of myocarditis and chronic nephritis.

Charles F. Hitchner, Elmer, N. J.; Jefferson Medical College of Philadelphia, 1867; aged 90; died, Dec. 15, 1934, of coronary thrombosis.

Green Alexander Cain, Chicago; Meharry Medical College, Nashville, Tenn., 1893; aged 62; died recently, of intestinal obstruction.

Thurman Gillespy, Huntington, W. Va.; Jefferson Medical College of Philadelphia, 1907; aged 55; died, Nov. 21, 1934, of heart disease.

Marshall G. Smith, Arnold, Md.; University of Maryland School of Medicine, Baltimore, 1887; aged 70; died, January 21, of influenza.

Albert Henry Kleiser, Orlando, Fla.; Pulte Medical College, Cincinnati, 1900; aged 75; died, Dec. 27, 1934, of hypostatic pneumonia.

Guy W. Allison, Fort Scott, Kan.; Meharry Medical College, Nashville, Tenn., 1908; aged 48; died, Dec. 1, 1934, of septicemia.

Hensel Joseph Hodges, Mansfield, Ark.; Kentucky School of Medicine, Louisville, 1879; aged 84; died, January 18, of carcinoma.

William Thompson, Morrisonville, Ill.; Missouri Medical College, St. Louis, 1881; aged 76; died recently, of lymphatic leukemia.

J. Eugene Baker, Marion, Ohio; Miami Medical College, Cincinnati, 1883; aged 77; died, January 25, of heart disease.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

RECENT ADVANCES IN ARTHRITIS

To the Editor:—A woman, aged 65, appears to have arthritis deformans. She is of slender build and is in good health otherwise, except for a mild mucous colitis for years. The first two joints of the index finger are now deformed, and the second joints of the middle fingers have the shooting pains that are the forerunners of the deposits there. I have heard that injections of cevitamic (ascorbic) acid will cure this condition. Have you any information as to this? If so, what route, frequency and dosage are recommended? What are the toxic symptoms of overdosage? I understand that Dr. Szent-Györgyi, the director of the Institute of Medical Chemistry, Szeged University, Hungary, has been working on this problem. What results has be obtained in arthritis deformans treated with this acid? What other treatments are well regarded or have produced cures of this disease? Would you consider thyroid extract favorably as an auxiliary measure? What about diet? (I have no reference books to speak of at hand.) Please omit name and address. M.D., Washington.

ANSWER.—Those who do not subscribe to one of the variants of the theory of infection in relation to chronic arthritis generally argue that it is the result of some metabolic derangement or defect in alimentation. The exact nature of this derangement, if such exists, has never been demonstrated. It has been suggested that arthritis is the result of a metabolic disturbance that is related chiefly to carbohydrates or proteins, sulphur or calcium, and so on. Recently (reflecting the trend of medical investigation in general) it has been suggested that a deficiency in vitamin might be the cause of, or at least prepare the soil for, chronic arthritis.

In 1921 McGarrison (Studies in Deficiency Disease) reported the production of atony of the intestine and degeneration of the intestinal mucosa in the colons of monkeys by feeding diets that were high in carbohydrates and that previously had been placed in the autoclave. Rowlands (Rheumatoid Arthritis, Is It a Deficiency Disease? *Proc. Roy. Soc. Med.*, Sec. Compar. Med. **20**:41 [April] 1927), noting that intestinal atony was a feature in certain cases of arthritis, propounded the question "Is rheumatoid arthritis a deficiency disease?" Fletcher of Toronto has extended this view and is inclined to believe that a lack of vitamin B may be responsible (The Nutritional Factor in Chronic Arthritis, *J. Lab. & Clin. Med.* **15**:1140 [Aug.] 1930).

None of these investigators, however, have conclusively produced experimental arthritis in animals by the use of a diet that was deficient in vitamins. In the absence of particular data, it has become the fashion of some to give arthritic patients diets that are rich in all vitamins, stressing chiefly vitamin B, which is given in yeast and in wheat germ. The intake of carbohydrate is reduced to enhance the utilization of vitamin B.

The chemical nature of vitamin C (cevitamic acid, introduced as ascorbic acid) apparently has been identified as a "hexuronic acid"; it is available both in natural and in synthetic forms. This substance is present in the adrenal glands and in certain varieties of paprika (Capsicum annum). Szent-Györgyi and his colleagues have kept guinea-pigs, on experimental diets, practically free from scurvy by the administration of the juice of paprikas. They also have noted that cevitamic acid readily disappears from the adrenal glands of animals that are on a vitamin C-free diet (Svirbely, J. L., and Szent-Györgyi, Albert: The Chemical Nature of Vitamin C, *Biochem. J.* **27**: 279, 1933. Szent-Györgyi: Die medizinische Bedeutung des Vitamines C, *Deutsche med. Wchnschr.* **60**:556 [April 13] 1934).

Cevitamic acid is too new to warrant many of the exaggerated therapeutic claims that have been made for it. Investigators have reported striking benefits from its use in pyorrhea (when due to vitamin C deficiency), certain types of hemophilia ("not the hereditary type"), certain forms of hemorrhagic nephritis, the disfiguring discoloration of Addison's disease, and "several other diseases." These require further clinical confirmation. Arthritis is not mentioned in the preliminary press reports (*Science News Letter*, Sept. 22, 1934; *Time* **24**:34 [Sept. 17] 1934).

For current concepts on the diagnosis and treatment of the various types of chronic arthritis, the correspondent is referred to "A Primer on Rheumatism and Chronic Arthritis," which has been prepared by the American Committee for the Control of Rheumatism, published by the American Medical Association. This booklet can be obtained for 15 cents from the offices of the American Medical Association.

TREATMENT OF MISSED ABORTION

To the Editor:—A patient, aged 20 years, three months pregnant, had labor pains because of severe overexertion I was able to stop them for four or five days with morphine. Then they became severe and the water broke. After that I tried to complete the miscarriage by using quinine and small graduated doses of solution of pituitary, but everything quieted down and now for two weeks there have been no changes. In the face of the ruptured membranes what would be your plan of procedure in this case? Would there be any possibility of the membranes closing up again and holding water? What is the danger to the mother and to the fetus? Please omit name. M.D., Indiana.

ANSWER.—Most likely this is a case of missed abortion; that is, the fetus is most likely dead but has not been expelled. One way to verify the death of the fetus is to perform an Aschheim-Zondek or Friedman test. If these tests are negative it is almost certain that the fetus is dead. However, if these tests are positive, it is by no means certain that the fetus is alive, because, if the chorionic villi are normal and active, these biologic tests are nearly always positive. The chorionic tissue often continues to live for a time after the fetus perishes. Of course, clinical evidence of the death of the fetus will be obtained if the uterus fails to grow larger. After death of an ovum the uterus usually diminishes in size and becomes firmer. It is possible for a fetus to continue its existence even after the membranes have ruptured. Occasionally the opening in the membranes is closed over, more liquor amnii forms, and the fetus continues to grow to term. More rarely, after the liquor has drained away the fetus continues its development outside the membranes. In such cases deformities may result. In most cases of missed abortion, especially where fetal death is of only a few weeks duration, it is advisable to wait until a spontaneous abortion takes place. Generally the nausea that may have been present ceases and the breasts become smaller. Occasionally disagreeable symptoms arise after fetal death and among them are a foul vaginal discharge, malaise, loss of weight, and slight elevation of temperature. If the patient is upset mentally by the condition it may be best to empty the uterus, provided it is certain that the fetus is dead. Usually a three months pregnancy can be removed by means of a dilation and curettement. Occasionally, however, the cervix is rigid and a vaginal hysterotomy becomes necessary. Frequently bleeding is excessive after a curettement for missed abortion, because the uterine musculature does not contract properly; hence one should be prepared to pack the uterine cavity after the operation. In the present case it is safe to wait; but while waiting to see whether the uterus will continue to soften and grow or become harder and smaller, coitus should be forbidden.

INFECTIVITY OF SYPHILIS

To the Editor:—What textbooks I have speak of the man but little of the women as to the time that must elapse to the point where she will not be liable to infect any one with syphilis. I am speaking of cases that have received little or no treatment in women. Textbooks say that a man can be infected and after a period of five years, even if untreated, may marry and reproduce healthy children and not infect his wife; that is, probably will not. Textbooks state (which one can see is the truth) that a woman may be infected early in life and, if untreated, the disease will lead to abortions or cause the patient to give birth to syphilitic children through her reproductive period in life. Here is the question I wish to ask your opinion on: Is there any period in the life of women who have contracted syphilis and have received no treatment (say like the male, after a period of five years) in which she would not infect the male? For example: A woman, aged 60, was married but separated from her husband and divorced him fourteen years ago, owing to his bad habits with other women. They had two children in their early married life, who are living and in good health; she had no abortions. This woman came under the care of a physician recently suffering from what she thought was rheumatism in the legs; the physician suspected tabes and the report from two different laboratories indicated the blood four plus. She could give no history of any primary or secondary symptoms; she has lived a clean life, which leads one to think that she has been infected from fourteen to twenty years. For example, if she had married five years ago and her husband was free from syphilis, could she have infected her husband? Please omit name. M.D., Illinois.

ANSWER.—The question of the infectivity of syphilis in both the male and the female is still far from conclusively answered. This is especially applicable, of course, to untreated cases. The observations that have been made on the infectivity of the semen have thrown a good deal of question into the so-called five year rule. The problem is even more difficult to evaluate in women, and the question as to just when a woman ceases to be able to infect her sexual partner cannot be categorically answered at this time. None the less, a large body of clinical evidence tends to show that, even after the second year of the untreated disease, infectivity begins to decline quite rapidly and between the fifth and the tenth year syphilis is comparatively seldom transmitted in the ordinary circumstances of life.

The occurrence of fetal infection is hardly an exactly parallel case, for the risks assumed in sexual exposure, even though repeated, can hardly compare with the risk to which the fetus is subjected in its direct contact with the maternal circulation. It is certainly true that the closest students of the question hesitate to name a time at which a woman with untreated syphilis can become pregnant without a significant possibility that she will infect her child.

ALLERGIC CONJUNCTIVITIS

To the Editor:—I have been perplexed in the treatment of what I believe to be a case of simple chronic conjunctivitis. The patient is a young adult whose work takes him in and out of doors. His general health is very good. He is not troubled with any intranasal or paranasal disease. He has complained of burning and grittiness of both eyes for the last three years. The condition is usually worse toward evening, when there is an associated slight photophobia. There have been some periods when he has had comparative amelioration of the symptoms; this is noted more especially in the summer months. An examination of the eyes reveals some congestion of the conjunctival vessels, with occasional strands of fibrin lying low in the sac. The redness is most marked in the palpebral conjunctivitis. At times there is some evidence of actual warmth in the eyelids. He has a small refractive error (slight astigmatism in one eye and slight hypermetropia in both eyes), which is corrected with glasses. The following treatment has been rigorously adhered to during the course of the disease: at first, frequent boric lotion washes, later combined with small amounts of zinc sulphate instillations: sodium hydrocarbonate also used later, with no better effect. Silver preparations have not been resorted to. Will you kindly suggest further lines of treatment? Please omit my name. M.D., New York.

ANSWER.—It is possible that the case in question is one of allergic conjunctivitis and it would be well to subject the patient to intradermal tests in the hope of finding the common substances to which he is sensitive. Subsequent withdrawal one by one of these substances, without changing the local therapy, would furnish absolute proof. If this course is not feasible, massage of the anesthetized conjunctiva with a glass rod is suggested. This should be performed from one to three times a week, followed each time by adequate flushing of the conjunctival sac with physiologic solution of sodium chloride or boric acid solution. The persistent use of silver nitrate or any of the colloidal silver salts is to be deprecated. Mild astringents, such as 0.5 per cent zinc sulphate or 2 per cent resorcinol will be found to be of greater value.

PSEUDOMUCINOUS CYSTADENOMA OF OVARY

To the Editor:—A woman, aged 30, has a pelvic tumor, diagnosed after considerable study in a university hospital in 1930 as pseudomucinous cystadenoma of the ovary. Previous to this date two laparotomies were performed and tumor masses removed. During the past five years considerable high voltage roentgen therapy has been given. The general nutrition and general physical condition are as good today as in 1930. The lower part of the abdomen and pelvis contains a large tumor mass fixed to the abdominal wall and surrounding structures. What is the prognosis of the case, considering the diagnosis as correct? How much roentgen treatment can be given and at what intervals? Kindly omit name.

M.D., Wisconsin.

ANSWER.—Pseudomucinous cystadenoma of the ovary is generally regarded as a benign lesion. The two important complications of this disease are implantation metastasis and malignant degeneration. In most instances the recurrence is benign and represents a direct, local implantation rather than a true metastasis. This complication is reported to occur in from 1.5 to 6.7 per cent of cases observed by various authors in the literature. In some cases microscopic examination of recurrences has failed to reveal any epithelial cells but only gelatinous material. The more important but less frequent complication consists of malignant degeneration. Recurrences as late as twenty-one years after operation have been recorded. Hofmeier has observed that the incidence of recurrence after the removal of one ovary is 4.9 per cent; after removal of both ovaries, 1.9 per cent.

The inability to determine from clinical examination whether carcinomatous degeneration has occurred renders it important to irradiate the lesion as if it were carcinoma. It is impossible to state with any degree of accuracy the prognosis in this case. Much would depend on whether the present mass represents an unremoved portion of the original growth or an entirely new growth. In the latter instance the prognosis would be much more serious than in the former. It is also impossible to outline the course of roentgen therapy without a knowledge of the response or lack of response to previous treatment, nor is it possible to state what dosage can be given without a knowledge of all the detailed factors of the previous irradiation. In general it is advisable to administer the radiation in divided daily doses to the extent that the condition of the skin will permit.

TRAUMA, SYPHILIS AND OPTIC ATROPHY

To the Editor:—A Negro, aged 23, was hit on the left temporal region and over the left eye, and also on the occipital regions of the head with a gun, during a holdup. He was unconscious, his left eye swelled up and closed completely, and the left supra-orbital region was lacerated. He was removed to a hospital, where he remained for ten days. Roentgen examination revealed a questionable fracture of the left parietal area. The left eye remained swollen for two or three weeks and then loss of vision set in. The ophthalmologist said that there was an injury to the optic nerve. For several months, previous to the trauma, the patient was receiving arsphenamine therapy for syphilis. His Wassermann reaction was 4+. His vision before the accident was good, because he had passed his vision test for a chauffeur's license. Is the loss of vision a result of the trauma per se? Is it the result of the syphilitic condition per se? Could the trauma have activated a latent or dormant syphilis of the optic nerve? Would the patient have lost his vision on account of the syphilis had not the trauma supervened at this time? In toto, did the trauma or the preexisting disease, namely, syphilis, cause the loss of vision? Please mention references. Kindly omit name.

M.D., New York.

ANSWER.—This case is not described fully enough to permit of an absolute answer. Knowledge of the condition of the optic nerves and the visual fields is essential. Judging from the description, it is most probable that the skull fracture involved either the orbit or the margins of the optic foramen and that as a result of that fracture there was a hemorrhage into the orbit, probably within the sheaths of the optic nerve, with resultant pressure and atrophy of the nerve. It is unlikely that a primary optic atrophy, due to syphilis, could be initiated by the trauma, although interstitial keratitis of syphilitic origin may be instituted by trauma. Much can be found on this subject in "Injuries of the Eye," second edition, by Würdemann, and the Kurzes Handbuch der Ophthalmologie, volume 4, by Cramer.

EPHEDRINE IN DYSPNEA

To the Editor:—I am interested in the employment of ephedrine intramuscularly in the treatment of allergic paroxysmal dyspnea. Suppose that a physician wished to use one-fourth grain (0.016 Gm.) of ephedrine hydrochloride. I wish to know: 1. What is the effective dose? 2. Can it be used safely after epinephrine? 3. Suppose that the patient is a child, aged 4 years, with a severe asthmatic attack, and one to which one is planning to give epinephrine chloride, from 4 to 6 minims, what amount of the ephedrine, given intramuscularly, would be an equivalent, therapeutically? I am aware that the hyporemic dose is stated to be one-sixth grain (0.01 Gm.) in Gutman. R. F. CHITTENDEN, M.D., Los Angeles.

ANSWER.—1. The effective dose depends on the age of the patient and the severity of the paroxysm, just as the dose of epinephrine must vary. An average dose of ephedrine hydrochloride intramuscularly will range from 0.01 to 0.03 Gm. (one-sixth to one-half grain). Dosage and repetition of dosage will depend on the effect on the asthmatic attack and on the occurrence of any of the usual, well known, untoward reactions on the part of the patient.

2. It may be used after epinephrine but it is not advisable, because the bad effects will be prolonged. Furthermore, there would be no necessity for administering ephedrine when the favorable effect of epinephrine has been secured.

3. There is no ephedrine equivalent to epinephrine in time of response. The dose of ephedrine comparable with the dose of epinephrine stated would be about 0.016 Gm. (one-fourth grain) therapeutically and about 0.02 Gm. (one-third grain) posologically.

It must be remembered that from 25 to 30 per cent of individuals are unable to tolerate ephedrine. If treatment with ephedrine is desired, it is best to mix epinephrine solution 1:1,000 and ephedrine 3 per cent solution in the proportion of 1:2 and give this mixture in the usual epinephrine dosage. There is a decided disadvantage in giving ephedrine when epinephrine is subsequently found necessary, because the synergistic effect that may occur even several hours later may cause severe headaches and other disagreeable reactions in a large percentage of individuals.

TACHYCARDIA—FUNCTIONAL APPRAISAL OF HEART

To the Editor:—1. What is the significance of paroxysmal tachycardia occurring in a man, aged 34, without other evidence of heart disease and in general good health? 2. What is the value of Tijerstedt's cardiac efficiency factor (pulse pressure/systolic pressure)? Does a coefficient above 40 indicate a worse prognosis than one below 20? 3. For practical purposes what tests will give the most accurate information concerning the functional capacity of the heart?

C. F. BARBER, M.D., Felicity, Ohio.

ANSWER.—1. Paroxysmal tachycardia in a man of 34, without other evidence of heart disease, almost always is a benign, although occasionally a troublesome, arrhythmia. There is no known cause for it, although it is regarded as neurogenic.

The prognosis for life is excellent. When attacks occur rarely, no treatment is indicated. When the attacks are frequent, constant digitalization, or the constant administration of 0.2 Gm. (3 grains) of quinidine sulphate, three times daily, may be helpful.

2. It is not established that any of these methods of calculation are of much help in prognosis.

3. There are no practical tests of the functional capacity of the heart that are as good as the ordinary appraisal obtained by an intelligent history and careful physical examination.

ALIMENTARY GLYCOSURIA OR DIABETES

To the Editor:—The other evening just by chance I happened to examine my own urine. I found that the Benedict's solution turned green (test for sugar). This specimen was passed about one hour after my evening meal, which consisted of two slices of pork chops, two buttered potatoes, one tomato (sugar on it for sweetening), three slices of rye bread, two patties of butter, one cup of coffee (with two teaspoonfuls of sugar), and eleven canned cherries with the syrup. Two hours after the meal I tested the urine again but there was no change in the Benedict's solution. It remained blue. Nevertheless I got rather scared at finding this sugar in the first specimen. On the following evening I cut down on the carbohydrates somewhat but there was still a faint green color with Benedict's solution. Could this be a case of alimentary glycosuria? I have noticed a moderate degree of polyuria lately, likewise a polydipsia. My mother, who is 68 years old, has some sugar in the urine. What should I do to rule out diabetes in my own case? In what way can alimentary glycosuria be differentiated from diabetic glycosuria? Two hours after my evening meal I do not find a change in the Benedict's solution; i. e., it stays blue. Physicians are advised to test urines within two hours after a hearty meal. In this case how can one differentiate an alimentary from a diabetic glycosuria? M.D., Pennsylvania.

ANSWER.—So-called alimentary glycosuria cannot be distinguished from mild or early diabetes mellitus and, indeed, may occur in moderate diabetes when the kidney threshold for sugar is raised. However, before deciding that this is really an "alimentary glycosuria" one should identify the reducing substance that appears in the urine as dextrose (fermentable sugar). One should also determine the blood sugar, both in the fasting state and after food, in order to rule out the possibility of a lowered kidney threshold for sugar (renal diabetes). When the renal threshold is only moderately lowered, glycosuria may occur only after meals and thus simulate an "alimentary glycosuria." The fact that the correspondent has recently noticed moderate degrees of polyuria and polydipsia, and the fact that the mother exhibits glycosuria, both favor the diagnosis of diabetes mellitus.

READING MATERIAL IN PSYCHONEUROSES

To the Editor:—I have had occasion to treat several cases of psychoneurosis. I have often felt that recommending some reading material in certain of these cases might help considerably from the standpoint of psychotherapy—from the standpoint of helping these patients gain some insight into their mental maladjustments. In "The Treatment of Psychoneurosis in General Practice" (THE JOURNAL, Oct. 13, 1934), Dr. Lauren H. Smith of Philadelphia speaks of "the study and reading a patient does in connection with special written material on mental hygiene" Would you please send me some suitable references? M.D., New York.

ANSWER.—What the patient reads and studies in relation to acquiring more knowledge about mental hygiene or in relation to working out personal problems is not as important as the way in which he studies and what help he has in getting some understanding about the reading. There are countless numbers of books and articles, many of which are good, some of which are bad, but few of which do not contain some material of value. The following books are a few that have been used with different patients. They are not all suitable for all personalities and one must be familiar with each book to know how adequate or safe it is for any one patient. They are books, however, which can be recommended unquestionably and which are used constantly.

"Discovering Ourselves," by Strecker and Appel, published by the Macmillan Company.
"Just Nerves" and "Intelligent Living," by Austen Fox Riggs.
"Outwitting our Nerves," by Dr. Josephine Jackson.

Other books that can be used in part or in whole, depending upon the patient, are:

"The Wholesome Personality," by Dr. William Burnham.
"Understanding Human Nature," by Dr. Felix Adler.
"Fear," by Dr. John Rathbone Oliver.
"What Men Live By," by Dr. Richard Cabot.
"How to Be Happy Though Human" and "Nervous Breakdown," by Dr. W. Beran Wolfe.

Isolated reading without discussion with the patient as to the relation of the reading to personal problems, or without certain interpretations, can confuse instead of help a patient.

ALOPECIA AREATA—DERMATITIS FROM DEODORANTS

To the Editor:—1. A farmer, aged 37, whose general health is excellent and whose past history is essentially negative, shaves himself. One month ago he noticed a small area, the size of a dime (18 mm. in diameter) located just to the left of the midline on the lower jaw, that was hair free. This area has increased in size and now is the size of a quarter (24 mm. in diameter). The area is smooth, surrounded by normal beard growth. The change is abrupt. The bearded portion next to the bare area is perfectly normal. Apparently the roots of the beard are gone. 2. Are either Deodo or Odorono capable of producing a dermatitis? Please omit name. M.D., New York.

ANSWER.—1. The appearance of a smooth area, devoid of inflammation, in which the hair is absent and the patch is surrounded by a normal hair growth, is the picture seen in that type of hair loss known as alopecia areata.

2. Deodo and Odorono are both capable of producing a dermatitis or folliculitis of varying degree in individuals with sensitive skins. The reaction is most probably due to the aluminum salts contained in these preparations.

SEXUAL INTERCOURSE TO FREE VESICLES OF GONOCOCCI

To the Editor:—What truth is there to the following statement: "In the declining stages of gonorrhea, sexual intercourse (with the use of a condom to prevent transmission of the disease) is not only harmless but of some value, in that it empties the seminal vesicles and prostate gland very much like a rectal massage does." Please omit name and address. M.D., California.

ANSWER.—The general consensus among urologists seems to be that gentle massage of the prostate and seminal vesicles is preferable to sexual intercourse during the declining stages of a gonorrheal urethritis. The possibility is always present that the patient may still harbor gonococci and that the condom may break, with resultant infection of the partner. Therefore it is much better to massage these patients than to recommend sexual intercourse.

BASEBALL FINGER

To the Editor:—A young woman has a "baseball finger," with the usual drop or flexion of the distal portion. What can be done to remedy this, some four weeks after injury? Please omit name. M.D., Washington.

ANSWER.—Four weeks is a long period. The simplest and best treatment is immobilization in the overcorrected position; that is, hyperextension of the distal phalanx of the affected digit. This can be accomplished by plaster of paris, a wood splint or preferably a splint like one described by Dr. Lewin in THE JOURNAL, Oct. 3, 1925, page 1059, and June 30, 1928, page 2102. This splint is made of aluminum, is light, is easily adjusted, is permeable to x-rays, can be immersed in water and is inexpensive. The pattern of the finger is made and sent to the brace maker, who molds and fits the splint.

NO FOOT AND MOUTH DISEASE IN UNITED STATES

To the Editor:—In Queries and Minor Notes in THE JOURNAL, January 19, page 239, in the reply to M.D., Alabama, concerning a boy affected with a throat and mouth trouble, the statement is made that "the association with cows and goats or the use of milk, butter or cheese from sources where foot and mouth disease is present might aid in the diagnosis." The fault of this statement lies in the fact that foot and mouth disease does not exist in the United States, and it could not exist in Alabama or elsewhere in this country without bringing great headlines in the newspapers and an army of disease fighters to the scene without an hour's delay. Foot and mouth disease is one of those sweeping animal plagues that leave no doubt of their presence. Foot and mouth disease has broken out in the United States several times during the last fifty years, but each time it was promptly stamped out. The vigil against it is constant. In view of the wide foreign circulation of THE JOURNAL, this remark by one so highly rated in the medical profession does an injustice to the veterinary service of the United States and can do incalculable harm to our struggling live stock industry. It implies that this grave plague exists among the domestic animals of the United States, notwithstanding official declarations to the contrary.

L. A. MERILLAT, D.V.M., Chicago.

PTOSIS OF EYELIDS

To the Editor:—In Queries and Minor Notes in THE JOURNAL, Dec. 22, 1934, the item entitled "Ptosis of Upper Eyelids" interested me, as from August to December 1928 I was a victim of ptosis of the upper right eyelid. A complete examination by several specialists proved negative. Ten days after I discontinued cigaret smoking the ptosis cleared up and I have never had any trouble since. Needless to say I have not smoked since. Please omit name and state. M.D.

Medical Examinations and Licensure

COMING EXAMINATIONS

ALASKA: Juneau, March 5. Sec., Dr. W. W. Council, Juneau.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written (Group B candidates).* The examination will be held in various cities throughout the country, April 29. *Oral (Group A and Group B candidates).* New York, June 10. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B candidates).* The examination will be held in various cities of the United States and Canada, March 23. *Final oral and clinical examination (Group A and Group B candidates).* Atlantic City, N. J., June 10-11. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 8, and New York, June 10. *Application must be filed at least sixty days prior to date of examination.* Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 10, and St. Louis, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

ARIZONA: *Basic Science.* March 19. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, April 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Reciprocity.* Los Angeles, March 13. Sec., Dr. Charles B. Pinkham, 420 State Office Building, Sacramento.

COLORADO: Denver, April 3. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Regular.* Hartford, March 12-13. *Endorsement.* Hartford, March 26. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* March 12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

IDAHO: Boise, April 2. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 203 State House, Boise.

ILLINOIS: Chicago, April 9-11. Superintendent of Registration, Department of Registration and Education, Mr. Eugene R. Schwartz, Springfield.

MAINE: Portland, March 12-13. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 12-14. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 144 State House, Boston.

MINNESOTA: *Basic Science.* Minneapolis, April 2-3. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

MONTANA: Helena, April 2. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination, June 24-26. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: Concord, March 14-15. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW MEXICO: Santa Fe, April 8-9. Sec., Dr. P. G. Cornish Jr., 221 W. Central Ave., Albuquerque.

OKLAHOMA: Oklahoma City, March 12-13. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO: San Juan, March 5. Act. Sec., Dr. Ramón M. Suarez, Box 536, San Juan.

RHODE ISLAND: Providence, April 4-5. Dir., Public Health Commission, Dr. Lester A. Round, 319 State Office Bldg., Providence.

WEST VIRGINIA: Charleston, March 18. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Madison, March 16. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

California July Examination at Los Angeles

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at Los Angeles, July 24-26, 1934. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Ninety-four candidates were examined, 89 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1934)	80, 80.1, 80.3, 80.4, 80.9, 81.2, 82.6, 82.8, 83, 83.3, 83.3, 83.6, 84, 84, 84, 84.9, 84.9, 85.3, 85.8, 85.8, 86.3, 86.9, 86.9, 87.1, 87.1, 87.3, 87.4, 88.1, 88.3, 88.7, 88.8, 88.9, 89.2, 89.9, 90.1, 90.6, 91.7
Stanford University School of Medicine		(1934)	84.3, 86.4, 88.6, 88.9, 89.7
University of California Medical School		(1934)	81.9, 86.2, 86.6, 89.7
University of Southern California School of Medicine		(1934)	75.1, 75.2, 75.2, 78.6, 80.3, 80.6, 82.3, 82.9, 83.2, 83.6, 84, 84, 84.1, 85.3, 85.3, 85.4, 85.7, 86.6, 86.8, 87.2, 87.7, 87.8
George Washington University School of Medicine		(1932)	86.9, (1933) 80.8
Rush Medical College		(1928)	77.8, (1934) 81.7, 85, 90, 92
State University of Iowa College of Medicine		(1933)	90.8
Johns Hopkins University School of Medicine		(1933)	81.2
Harvard University Medical School		(1933)	84
University of Michigan Medical School		(1933)	81.8, (1934) 86.1
St. Louis University School of Medicine		(1933)	93.8
Washington University School of Medicine		(1933)	80.6, (1934) 87.4
University of Nebraska College of Medicine		(1931)	84.4
Cornell University Medical College		(1933)	83
University of Pennsylvania School of Medicine		(1933)	83.3
Woman's Medical College of Pennsylvania		(1933)	86.9
Medical College of Virginia		(1920)	86
University of Toronto Faculty of Medicine		(1933)	88.2

School	FAILED	Year Grad.	Per Cent
American Medical Missionary College, Chicago		(1902)	60.2
Bennett College of Eclectic Med. and Surg., Chicago		(1915)	68.7
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main, Prussia, Germany		(1926)*	61.9
Universität Leipzig Medizinische Fakultät, Saxony, Germany		(1908)*	62.8
Regia Università degli Studi di Modena Facoltà di Medicinia e Chirurgia, Italy		(1932)*	57.3

* Verification of graduation in process.

California July Examination at San Francisco

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at San Francisco, July 10-12, 1934. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. One hundred and twenty-three candidates were examined, 118 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1934)	78.9, 81.2, 83.9, 84.8, 85, 85.8, 85.8, 85.9, 86.9, 87, 87.1, 89.7, 90.4
Stanford University School of Medicine		(1933)	82.2, 82.9, (1934) 76, 77.8, 78.4, 79.9, 81.4, 82.4, 82.4, 82.7, 82.7, 82.8, 83.1, 83.4, 83.9, 84.6, 85.1, 85.2, 85.2, 85.6, 85.8, 86.3, 86.3, 87.1, 87.2, 88.1, 88.4, 90.1, 90.3
University of California Medical School		(1933)	76.6, (1934) 78.2, 79, 79.4, 79.8, 80.1, 80.2, 80.8, 81.7, 81.8, 82.2, 82.6, 82.8, 82.9, 83, 83.1, 83.7, 83.7, 84, 84.6, 84.8, 84.9, 85, 85.1, 85.1, 85.6, 85.6, 85.7, 85.8, 85.9, 86, 86.2, 87, 87, 87.1, 87.4, 88, 88.1, 89.6, 90.3, 90.9
University of Southern California School of Medicine		(1934)	82.3, 83.8
Loyola University School of Medicine		(1934)	84.9
Northwestern University Medical School		(1934)	75.4, 79.4, 84.3, 88.1, 88.6, 91.6
Rush Medical College		(1934)	85.1, 88.3
University of Illinois College of Medicine		(1934)	77.8, 82
Indiana University School of Medicine		(1932)	79.1
Harvard University Medical School		(1932)	83.6
University of Michigan Medical School		(1931) 75.4, (1932)	86.6
St. Louis University School of Medicine		(1933)	77.3
Creighton University School of Medicine		(1934)	75.3, 77.6, 79.8, 81.4, 81.9, 84.6, 85.4, 87.1
University of Nebraska College of Medicine		(1933)	78.4
Cornell University Medical College		(1932)	85.2
University of Rochester School of Medicine		(1933)	78.8
University of Oklahoma School of Medicine		(1933)	84.4
Jefferson Medical College of Philadelphia		(1933)	83.4
University of Pennsylvania School of Medicine		(1933)	83.4, 85.8
McGill University Faculty of Medicine		(1933)	85.7
Hamburgische Universität Medizinische Fakultät, Hamburg, Germany		(1922)*	87.8

School	FAILED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1933)	70.3
University of Oklahoma School of Medicine		(1933)	68.7
Hahnemann Medical College and Hosp. of Philadelphia		(1902)	66
Universität Heidelberg Medizinische Fakultät, Baden, Germany		(1933)*	68.6
University of Moscow Faculty of Medicine		(1919)*	21.1

* Verification of graduation in process.

West Virginia October Report

Dr. Arthur E. McClue, state health commissioner, reports the oral, written and practical examination held in Martinsburg, Oct. 29-31, 1934. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Six candidates were examined, all of whom passed. Eleven physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine		(1932)	88.1
University of Louisville School of Medicine		(1932)	86.2
Harvard University Medical School		(1932)	92.1
Western Reserve University School of Medicine		(1933)	89.2
Jefferson Medical College of Philadelphia		(1930) 86.8, (1933)	86

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville School of Medicine		(1933)	Kentucky
Johns Hopkins University School of Medicine		(1929)	Maryland
University of Maryland School of Medicine		(1910)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1930)	Maryland
University of Michigan Medical School		(1933)	Michigan
Vanderbilt University School of Medicine		(1932)	Tennessee
Medical College of Virginia		(1924), (1932), (1933, 2)	Virginia
University of Toronto Faculty of Medicine		(1926)	Minnesota

Book Notices

Amebiasis and Amebic Dysentery. By Charles F. Craig, M.D., M.A., F.A.C.P., Professor of Tropical Medicine and Head of the Department of Tropical Medicine, School of Medicine, Tulane University of Louisiana, New Orleans. Cloth. Price, $5. Pp. 315, with 54 illustrations. Springfield, Ill., & Baltimore: Charles C. Thomas, 1934.

This timely monograph was written to help the physician in the diagnosis, prophylaxis and treatment of amebiasis, which, although not so understood by every one, includes amebic dysentery. The first chapters deal with the historical aspects of the disease and with its geographic distribution. The disease is world wide and, in the United States, its incidence is from 5 to 10 per cent. Included is a discussion of the organism Endamoeba histolytica,. and Craig clearly points out the importance of the typical sluglike, directional movement of fresh trophozoites. Tables of surveys are listed to demonstrate certain epidemiologic aspects of amebiasis. However, since most surveys are of the sick, or at best of institutionalized subjects, there may be a reasonable doubt as to their application to the general population. Craig believes that the chief method of transmission is by food handlers, although he recognizes other methods as having been demonstrated. The pathology is treated in two chapters, and evidence is offered that carriers always have lesions due to cytolysis and necrosis of superficial epithelium, which is constantly taking place. He does not accept Kofoid's conclusions that joints are invaded in arthritis or lymph nodes in Hodgkin's disease. Symptomatology is thoroughly covered in relation to the healthy carrier, the carrier who is considered healthy but has very mild symptoms, and the patient who has recurrent attacks, and in relation also to acute and chronic amebiasis, with and without various complications and with and without sequelae. Methods of diagnosis receive adequate treatment in two chapters that deal with clinical examinations and laboratory methods, including smears, stains and cultures, and complement fixation tests; the last he recognizes as still experimental. Prognosis, prophylaxis and treatment are covered in the last chapters, with the admonition that there is no single drug and no single method that can be effective in all cases. In general, he favors emetine for the acute condition, followed by chiniofon, and for carriers chiniofon alone. The book is handsomely illustrated and the style is that of an experienced teacher, direct and forceful. Craig's position in this country in the field of amebiasis is unchallenged, and this monograph is a worthy climax to his thirty years of experience in this work.

Radium and Cancer: A Monograph. By H. S. Souttar, D.M., M.Ch., F.R.C.S., Surgeon, London Hospital. Cloth. Price, 21/-. Pp. 387, with illustrations. London: William Heinemann, Ltd., 1934.

In his introduction the author points out the difficulties encountered in the radium treatment of cancer and adds that "the success obtained is due to the clinical instinct of the surgeon in each case, to his wide experience and the incommunicable way in which he applies that experience to the problem which each case presents." He could not have stated the problem more clearly and forcibly. Unfortunately, it is not yet recognized that the execution of a correct irradiation is not a simple technical procedure or a prescription to be filled by a technician under the general direction of a clinician not familiar with the principles of radiotherapy. Actually the problem is so complex that there is no field in medicine in which the clinical instinct and skill of the clinician are more important in the result than in the radiotherapy of cancer.

Recognizing the difficulties that beset the surgeon as regards the physics of radiation and the difficulties encountered by the physicist in comprehending the associated pathologic and clinical problems, the monograph is presented in an effort to unite the physical properties of radium with the clinical application of this agent to certain forms of cancer. The first nine chapters deal with the physics of radiation. These are followed by chapters on biologic effects, measurement of dose, and technic of radium application. The last eight chapters discuss the treatment of cancers of the skin, mouth, breast, esophagus, rectum, bladder, prostate and cervix. The physics of radiation is presented accurately, concisely and clearly. The selection of the material has been well made and this portion of the monograph constitutes an excellent presentation of the subject for clinicians especially interested in the uses of radium. The chapters dealing with the construction of various types of radium applicators and radium beam therapy are of interest and practical value.

In discussing the general principles of radiotherapy the author believes that gamma rays of radium present a very definite advantage over x-rays since, owing to their shorter wavelength, they have proportionately greater penetration. It is easier to maintain a uniform field in deep seated lesions with radium than with x-rays, and although the use of greater distances with x-rays permits the delivery of a larger proportion of the energy in the depth, the use of such volumes presents important disadvantages. Thus there is general agreement that x-rays produce more constitutional disturbance than do gamma rays of equal adequacy, probably because of the more complete absorption which x-rays undergo in the tissues.

The latter part of the book, dealing concisely with the radium treatment of certain forms of cancer, contains much useful and practical clinical information. It is interesting to note that the author prefers the use of radon seeds to removable platinum needles in the treatment of carcinoma of the breast, although he is impressed by the technic and results of Keynes. It is difficult to visualize an accurate placement of 100 or 150 radon seeds throughout a breast. In this respect the author is not supported by the principles of filtration and uniformity of distribution or by the comparative results of the two methods in the hands of various workers. On account of the dangers involved and poor results obtained, the author's use of radon seeds in the treatment of carcinoma of the esophagus is generally not acceptable.

On the whole, the author is to be congratulated on his achievement of presenting in clear and concise form an interesting treatise on the physics of radium and its clinical application in the treatment of certain forms of cancer. The book can be recommended to all physicians who have a special interest in the radiotherapy and especially radium therapy of cancer.

Anaesthesia and Analgesia in Labour. By Katharine G. Lloyd-Williams, M.D., B.S., Honorary Anaesthetist to the Royal Free Hospital, Including the Obstetrical and Gynaecological Unit. With a foreword by Dame Louise McIlroy, D.B.E., D.Sc., M.D., Professor of Obstetrics and Gynaecology, London (Royal Free Hospital) School of Medicine for Women. Fabrikoid. Price, $2. Pp. 96, with 12 illustrations. Baltimore: William Wood & Company, 1934.

This book describes the administration of drugs and anesthetics commonly used in England not only in hospitals by trained anesthetists but also in homes by general practitioners. The author emphasizes that thus far the ideal anesthetic has not been found. Most of the information given in the book is based on the extensive experience of the author. The material is divided into chapters describing the use of anesthetics and analgesic drugs in the first stage of normal labor, the second stage of normal labor, the third stage of labor and the resuscitation of the new-born, anesthesia for abnormal deliveries, and analgesics and anesthetics in complicated labors. Contrary to most American anesthetists and obstetricians, the author considers chloroform to be a comparatively safe anesthetic in the second stage of labor. She does not believe that ether is as satisfactory as chloroform or nitrous oxide and oxygen. Ethylene has not been used much in England. The author believes that spinal anesthesia is excellent for cesarean sections; but it should be emphasized that pregnant women are far more susceptible to the dangers of spinal anesthesia than are nonpregnant individuals and the death rate is much higher among the former. The author singularly points out that spinal anesthesia should be used in cardiac cases but a bad heart in a pregnant woman is a double contraindication to the use of spinal anesthesia. Likewise the author recommends the use of morphine before administering a spinal anesthetic; but since this and other alkaloids are respiratory depressants, they may lead to harm when a spinal anesthetic is used. Direct infiltration anesthesia is far simpler and safer than spinal anesthesia and should be used more frequently than it is at the present time. The book does not contain anything new but it is an excellent summary of the subject of analgesia and anesthesia in labor.

Psychotherapie: Ein Lehrbuch für Studierende und Ärzte. Von Privatdozent Dr. Heinrich Kogerer. Cloth. Price, 10 marks. Pp. 167. Vienna: Wilhelm Maudrich, 1934.

The German language psychiatric literature seems recently to have changed. Until a few years ago German works on psychiatry were so detailed that their usefulness to the American practitioner was curtailed because of their ponderousness. Today, works such as Kogerer's impress one with their superficiality. Fully half of it treats of the symptoms of mental disorders rather than of their treatment. In this respect the book is inferior to the general run of American psychiatric textbooks intended for students. Organic psychoses for which there are now some treatments susceptible of being carried out by the general practitioner (for whom this book was intended) are hardly mentioned. The first half of the book contains a number of interesting comments, which are not particularly new but which are well expressed and might prove useful to a reader who has not gained his knowledge of psychotherapy through experience. In this part there is a chapter describing the attitude and make up of the psychotherapist which does not agree entirely with the experience of American practitioners. The chapter on psychotherapeutics in general attempts to cover the whole field in a relatively short space. No particular stress is laid on such new and useful technics as those devised by Freud and Adler. While the use of these technics is mentioned only casually, the author's interest in psychoanalysis is shown in a number of the case studies in which he mentions the use of analysis. These case studies are relatively short and there are about sixty-three of them. There are two pages devoted to social psychiatry at the end of the book. The knowledge to be derived from this book would seem to be useful to only those psychiatrists who are interested in keeping up with the literature on the subject. For practical purposes the information given is explained sufficiently well in American works to make the reading of this book unnecessary.

The Medicolegal Necropsy: A Symposium held at the Twelfth Annual Convention of the American Society of Clinical Pathologists at Milwaukee, Wisconsin, June 9, 1933. Edited for the Society by Thomas B. Magath. Cloth. Price, $2.50. Pp. 167, with 63 illustrations. Baltimore: Williams & Wilkins Company, 1934.

The contents of the book are: introduction, by Frederic E. Sondern; the medicolegal system of the United States, Oscar T. Schultz; the medicolegal necropsy, Charles Norris; performing the medicolegal necropsy, A. V. St. George; pathologic anatomy of death by drowning, Edward L. Miloslavich; toxicology in the medicolegal necropsy, Alexander O. Gettler; medical examiner's findings in deaths from shooting, stabbing, cutting, and asphyxia, Harrison S. Martland; report on necropsies by a joint committee representing the New York Academy of Medicine, the New York Pathological Society and the Metropolitan Funeral Directors' Association. These articles are reprinted from the January 1934 issue of the *American Journal of Clinical Pathology*, except the article by the joint committee, which appeared in the *Archives of Pathology* **14:** 701 (Nov.) 1932.

Die Irrtümer der Psychoanalyse: Eine Irrlehre mit einem genialen Kern. Von Dr. med. Henrik Egyedi. Paper. Price, 2.80 marks. Pp. 86. Vienna & Leipzig: Wilhelm Braumüller, 1933.

This is one of those critical writings on psychoanalysis which cannot decide whether to appreciate or reject Freud's doctrine. The first chapter of the book consists of quotations of different authors' controversial opinions about psychoanalysis. After this the author has difficulty formulating his own opinion. Unlike many critics of psychoanalysis, the author, who obviously has been fascinated by this new field, shows a fair knowledge of psychoanalytic literature and quotes extensively from Freud's and also to some extent from Ferenczi's and Jones's writings. It is obvious that his knowledge of psychoanalysis is a theoretical book knowledge and is not based on clinical experience. Accordingly, his criticisms are more of a deductive nature. What he can accept are mostly generalities, but he finds the more specific references to case histories or dream interpretations often fantastic and unacceptable. He gives great credit to Freud's general dynamic concept of neuroses but is skeptical regarding the correctness of detailed interpretations. He does not agree with the psychoanalyst's concept of the phenomenon of transference and is inclined to consider it as a deluded form of hypnotic suggestion. The reader cannot help but feel that the author is in the process of his struggle with this new approach and that the book is the result of this struggle to digest and understand it. His undecided ("ambivalent") attitude is expressed in the subtitle of the book, "an erroneous doctrine with an ingenious nucleus," and he ends his writing with the following statements:

> He [Freud] dared to introduce into the psychologic and psychiatric sciences the finely shaded thinking of the Russian and French belles-lettres of the second half of the nineteenth century; with this method he broke through the solid barriers of the limited physicochemical way of thinking in these sciences.
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> Arts always anticipate sciences. Dostojewski, Ibsen and Maupassant ought to have waited many hundred years before they could express logically and inductively the psychologic motivations of the heroes of their novels. Any one who, like Freud, had dared to make the courageous step of introducing into the psychologic sciences ideas which can only be intuitively grasped but not proved, was necessarily bound to go beyond the goal. It would be a misjudgment of the genius of the man if one only considered the defects of his accomplishments and not its merits.

The Anatomy of Surgical Approaches. By L. C. Kellogg, A.B., M.D., Professor of Anatomy, College of Medical Evangelists, Loma Linda and Los Angeles, California. Cloth. Price, $1.50. Pp. 134, with 29 illustrations. Baltimore: William Wood & Company, 1934.

This is a pocket size volume the chief purpose of which is to outline the specific methods of approaching the various structures within the body by means of external landmarks. Especial emphasis is placed on the extremities. No consideration is given to internal organs. The book is divided into four parts. The first deals with the upper extremity and considers the means of exposure of its arteries, nerves, bones, joints and tendons, as well as the spaces of the hand, palm and wrist. The second part considers the head and neck, giving special attention to isolation of the large vessels of the neck, the phrenic nerve and the technic of such procedures as injection of the maxillary nerve, exposure of the brachial plexus, and tracheotomy. The section devoted to the thorax and abdomen considers parecentesis pericardii, ligation of the internal mammary and iliac arteries, and the muscle splitting incision of the abdominal wall. The fourth part, like the first, deals with the exposure of the vessels, nerves, bones and joints of the lower extremity. The work is written well, simply and concisely. The directions are clear and easily followed. The book should prove of value to the surgeon, to the general practitioner who is at times called on to do surgery, and to the medical student.

Traité élémentaire d'exploration clinique médicale [technique et séméiologie]. Publié sous la direction de Emile Sergent, professeur à la Faculté de médecine de Paris. Avec la collaboration de MM. Francis Bordet, Paul George, Hazard, d'Heucqueville, Camille Lian, René Mignot, Oury, Pierre Pruvost, Ribadeau-Dumas et Emile Sergent. Cloth. Price, 145 francs. Pp. 1,176, with 420 illustrations. Paris: Masson & Cie, 1934.

This is a complete and thorough book on medical technic. It is so complete that it is rather difficult to pick out any single phase of it for special comment. Almost all fields of diagnostic endeavor are covered and well covered. The section on x-rays contains some of the best printed roentgenograms we have ever seen. The rest of the illustrations are likewise excellent and to the point. The colored prints are as well done as one sees in special books devoted to the blood. The French seems easy to grasp. The book should be a standard reference book for clinical-technical procedures.

A Text-Book of Medical Psychology. By Ernst Kretschmer, Dr. Med., Professor of Neurology and Psychiatry in the University of Marburg. Translated from the fourth German edition, with an introduction by E. B. Strauss, M.A., D.M., M.R.C.P., Assistant Physician to the Cassel Hospital for Functional Nervous Disorders. Cloth. Price, $5. Pp. 274, with 24 illustrations. New York & London: Oxford University Press, 1934.

Here there is neither probing of metaphysical mysteries nor tracing of psychophysical intricacies. Any medical student or practitioner could read this book with profit, and every neuropsychiatrist should. "Typological psychology" is given simply a fair share of prominence. A scant dozen pages are devoted to the research most readily associated with the author's name, that on the pyknosomatic and other types of habitus with their associated temperaments. The experimental work of Enke, Kroh, Klages and investigators along similar lines is mentioned with approval. Decision is reserved on the more speculative conclusions of the Jaensch school—as generally in America. Exceptions have been taken to Kretschmer's types as being too

inflexible or mutually exclusive. He seems to meet such objections satisfactorily (p. 147) with his description of "diathetic" and "psychaesthetic" scales, and his disclaimer "essential factors . . . should not be artificially separated out by means of too sharply limited concepts." The subject of intelligence is handled in the best modern manner, against a sociological background. Consciousness and the degrees of the unconscious are discussed in terms of a less familiar concept, the "sphaira." Freud is given every credit for the epoch-making work of his school; the supreme importance of sexuality and of infantile traumas, however, is discounted. Jung fares best of the psychoanalysts. Kretschmer's "psychobiogram" has been criticized for its length and complexity. It is an excellent example of Teutonic thoroughness. In actual practice, not all the data would be obtainable in every case. The translation is thoroughly readable; the bibliography is well selected, and the index helpful.

Investigaciones sobre la enfermedad de Chagas. I: Sobre nódulos de histiocitosis en el hígado de perro inoculado con S. cruzi Chagas, de origen humano. Por los Doctores Salvador Mazza y M. E. Jörg. II: Otro caso de forma aguda de enfermedad de Chagas en le Norte Santafecino. Por los Doctores Salvador Mazza y Cecilio Romaña. Publicación No. 15. Universidad de Buenos Aires, Misión de estudios de patología regional Argentina, Jujuy. Paper. Pp. 54, with 48 illustrations. Buenos Aires: Imprenta de la Universidad, 1934.

Investigaciones sobre la enfermedad de Chagas. I: Primer caso agudo de la enfermedad de Chagas comprobado en la provincia de Santiago del Estero. Por los Doctores Silvio Raimondi y Enrique J. Canal Feijoó. II: Comprobación de formas agudas de la enfermedad de Chagas en Añatuya (Santiago del Estero). Por los Doctores Salvador Mazza y F. Z. Guerrini. Publicación No. 16. Universidad de Buenos Aires, Misión de estudios de patología regional Argentina, Jujuy. Paper. Pp. 20, with 8 illustrations. Buenos Aires: Imprenta de la Universidad, 1934.

Investigaciones sobre la enfermedad de Chagas. I: Casos agudos benignos de enfermedad de Chagas comprobados en la provincia de Jujuy. Por el doctor Salvador Mazza. II: Hallazgo del gato como portador natural del Schizotrypanum cruzi en la provincia de Jujuy. Por el doctor Salvador Mazza. III: Comprobación de otra forma aguda de la enfermedad de Chagas en la provincia de Jujuy. Por los Doctores Salvador Mazza y Pablo Almaraz. IV: Diffusión de la infección natural por S. Cruzi en Perros de la provincia de Jujuy. Por el doctor Salvador Mazza. Publicación No. 17. Universidad de Buenos Aires, Misión de estudios de patología regional Argentina, Jujuy. Paper. Pp. 23, with illustrations. Buenos Aires: Imprenta de la Universidad, 1934.

The eight papers in these publications appeared under the auspices of the University of Buenos Aires and form a valuable addition to the rapidly growing literature on Chagas' disease, or American trypanosomiasis of man. Five papers give interesting clinical reports of cases occurring in Argentina, two deal with dogs and cats naturally infected with Trypanosoma Cruzi, and one is a study of the histiocytic response in the liver of an experimentally infected dog.

Tumors of the Female Pelvic Organs. By Joe Vincent Meigs, A.B., M.D., F.A.C.S., Instructor in Surgery, Harvard Medical School. With a foreword by Robert B. Greenough, M.D., President-Elect of the American College of Surgeons, 1933-1934. Cloth. Price, $6. Pp. 533, with 261 illustrations. New York: Macmillan Company, 1934.

In this book the author admirably describes the benign and malignant tumors affecting the pelvic organs and outlines the adequate treatment for each type. He has incorporated the most generally accepted views concerning these growths and has supported them by series of cases from the Massachusetts General Hospital. The text is ably written and affords a complete picture of each group. It is printed in large, clear type and on good paper. The illustrations amply supplement the text, are well chosen and appear chiefly in halftones and black and white. The chapter on carcinoma of the cervix is especially well written, as is the last chapter, on metastases. The author's discussion of total versus supravaginal hysterectomy for fibroids is rational and warrants the serious consideration of gynecologists and general surgeons alike. In estimating the significance of the retained cervical stump after supravaginal hysterectomy, Meigs found that in the Massachusetts General Hospital "cancer of the cervical stump developed less frequently in patients who have had the top of the uterus removed than did cancer of the cervix in the group of women in the hospital as a whole." From this he deduces that total hysterectomy for fibroids as advocated by some physicians as a routine is not always warranted and that it would endanger the lives of some women who would probably never develop cancer. Periodic examination of the stump is advocated, as even the uninjured cervix may develop cancer. Not only the surgeon but the radiation therapist and pathologist as well will profit by a careful study of this splendid book. Numerous references accompany each chapter. An adequate index is appended.

Técnicas de laboratorio: Análisis de alimentos, análisis clínicos. Por Casadevante y Sanfellú. Paper. Price, 25 pesetas. Pp. 431, with 56 illustrations. Madrid: Javier Morata, 1933.

The first part of this book deals with the chemistry of sugars, fats and condiments; only the more elementary facts are stated. The second part is a laboratory manual; it gives many of the routine procedures for the more important laboratory examinations of urine, feces, blood, cerebrospinal fluid and sputum. There are several omissions and errors: for example, a statement to the effect that "Amoeba coli" is the specific agent in amebic dysentery. The Wassermann test is given as the method of choice in the laboratory diagnosis of syphilis, but the precipitation reactions of Meinicke, Kahn and Sachs-Georgi are considered reliable. The microscopic agglutination test for the typhoid bacillus, paratyphoid bacilli and Brucella melitensis is recognized as the most satisfactory. The usual methods for the demonstration of tubercle bacilli in sputum are given. The only method for the detection of other pathogenic bacteria (pneumococci, streptococci and similar organisms) is the preparation of gram-stained smears.

Mental Health: Past, Present and Future. By Arthur Hiler Ruggles, M.D., Superintendent of Butler Hospital, Providence, R. I. The Colver Lectures, 1932. Published for Brown University, Providence, R. I. Cloth. Price, $1.50. Pp. 104. Baltimore: Williams & Wilkins Company, 1934.

The Colver Lecture in Brown University for 1932 primarily is a brief historical review of the development of psychiatry and of the growth of facilities for the care of the insane. Under three divisions, mental health of the past, of the present and of the future, beginning with the time of Hippocrates, the changing conceptions of mental ill health are traced to the present time, and the author's conception of the future development of psychiatry is sketched. The growth of hospitals for the care of the insane is particularly stressed. This brief work is exceptionally comprehensive in scope. In commenting on the multiplicity of factors that are pertinent to an understanding of conduct, the author has made it difficult for the layman to keep the thread of his discourse as it pertains to the problem of mental health. He has attempted to outline the concept that man must be understood "not as a series of organs or a collection of diseases but rather as a total human being with his physical and mental equipment intricately . . . interrelated." He has, however, not achieved an effective unity in presenting this theme. This is due to lack of selection and discrimination in emphasis. Encephalography as a diagnostic method and the social and emotional factors in schizophrenia are discussed in one and the same paragraph. This is too telescoped for the lay mind to deal with. The book is provocative rather than informative; the historical material is authoritative and the most interesting section is that dealing with the activities of Dorothy Dix and the establishment of the Butler Hospital, of which the author is at present superintendent.

A Synopsis of Regional Anatomy. By T. B. Johnston, M.B., Ch.B., Professor of Anatomy, University of London, Guy's Hospital Medical School. Third edition. Cloth. Price, 12s. 6d. Pp. 460, with 11 illustrations. London: J. & A. Churchill, Ltd., 1934.

This book is intended to help students engaged in a review of gross anatomy. Its arrangement is regional. It attempts to indicate the anatomic facts in each region that are practically important in surgery or medicine or that might easily escape notice. Students in our medical schools often state that they would like to know which facts in anatomy are of the most importance in actual clinical work. They will find in this book a reliable indication. It is not lengthy; the author has selected the points to which attention is given wisely and has stated them clearly. It would find its greatest usefulness if read in connection with a review study of a dissected part or of a skeleton. Study of dissections after their completion would be of more value to the students of anatomy than many of them realize, and in such a study this book would be of great help. It can be recommended to students reviewing gross anatomy in connection with the study of surgery.

Medicolegal

Insurance, Life: "Due Proof" of Total and Permanent Disability.—The New York Life Insurance Company issued to the plaintiff an insurance policy providing for the payment of certain benefits on receipt of "due proof . . . that the insured . . . has become wholly disabled by bodily injury or disease so that he is and will be presumably thereby permanently and continuously prevented from engaging in any occupation whatsoever for remuneration or profit." The plaintiff, 40 years old, became afflicted with phlebitis and a blood clot formed in the vein, in the thigh of his right leg. Contending that he was totally and permanently disabled, he applied for the benefits payable under the policy. The insurance company denied liability. In a suit to collect the benefits, the trial court gave judgment for the plaintiff and the defendant appealed to the Supreme Court of Michigan.

The medical testimony, said the Supreme Court, established the fact that the plaintiff could not pursue any suggested vocation with a reasonable degree of regularity or length of time and without hazard of relapse. The physicians who attended the insured stated that he was not able to engage in any occupation for gain except under circumstances so favorable and fortuitous as to be without the range of probabilities. They testified that the insured's disability was probably permanent. The insurance company contended, however, that "due proof" of total disability had not been submitted to it, as required by the policy. Of course, said the Supreme Court, the policy cannot fairly be construed to constitute the defendant insurance company the sole judge of disability or to mean that the fact of permanent disability is foreclosed in favor of or against either party by the proof made to the company by the insured. Actionable disability ultimately, said the court, is a question of fact for trial. "Due proof" can mean no more than that reasonable evidence of disability within the terms of the policy shall be submitted to the company. Where such evidence is submitted in a good faith attempt to comply with the provisions of the policy, the company should point out particularly any defects therein if it intends to rely on them. The insured in this case submitted the reports of four attending physicians covering treatments from July 26, 1928, to June 1930, showing the character of his ailment and that he was totally disabled continuously during that time. The physicians who early treated him made a prognosis that his disability would extend into the future but did not then express an opinion that it would be permanent. However, they became progressively doubtful of his recovery as time passed and the condition did not yield to treatment. The physician who attended him in 1930 stated: "It is my opinion that as much collateral circulation has been established in the Rt. leg as is possible and that condition now is one of total and permanent disability as far as pursuing occupation is concerned." Having before it proof of the nature of the disease, concluded the Supreme Court, of the results of treatment for two years, of the fact of past and present total disability, and medical opinion that it would be permanent, the defendant insurance company had such reasonable showing of total disability as constituted "due proof" and required it to pay the benefits or to be prepared to defend on the fact of disability. The judgment in favor of the insured was consequently affirmed.—*Forman v. New York Life Ins. Co. (Mich.), 255 N. W. 222.*

Foods: Liability for Death from Trichinosis.—The plaintiff, as administrator of the estate of his deceased wife, brought this action against a retail dealer in meats and against the defendant packer, claiming that his wife contracted trichinosis as a result of the ingestion of uncooked sausage prepared from raw pork containing trichinae, purchased from the retail dealer, who in turn obtained it from the packer. The retail dealer was relieved from liability by a directed verdict, and a verdict was rendered against the packer, from which an appeal was taken to the Supreme Court of Michigan.

The testimony showed, said the Supreme Court, that there is no known, practicable or feasible method of determining whether hogs are infected with trichinae. The bacteria can be detected only by microscopic inspection of the entire carcass of the animal, although the organism is generally found in the muscles. Until 1906 it was the practice of the government to make such examinations, but this practice was finally discontinued because it was found to be ineffective. The only known treatments generally effective in killing trichinae are (1) freezing for twenty days at a temperature not higher than 5 degrees Fahrenheit, (2) raising the temperature of the meat to 170 degrees momentarily, or (3) a prescribed curing process. All of these processes, although effective, remove from the meat in a degree the quality of freshness demanded by the public. None of these methods were used by the packer in the preparation of fresh pork, but the evidence clearly showed, continued the court, that all the ordinary, usual and reasonable precautions taken by the meat packing industry were observed in the present case. There was no testimony revealing any negligence on the part of the packer. There was no breach of duty chargeable to it. The fresh pork was prepared by the methods adopted by other packers engaged in similar businesses. The methods of preparation and inspection measured up to the standard demanded by the federal government.

A Michigan statute forbids the sale of adulterated foods, including diseased or tainted meats. The plaintiff contended that a violation of this statute was negligence per se. To give the statute such force, said the court, would in effect impose on the packer the liability of an insurer, regardless of the unusual nature of the use to which the product is put. The legislature did not intend to impose on the producer the absolute civil responsibility of an insurer in cases in which every reasonable means designed to guarantee the safety of food for normal use has been employed. Likewise, it would be manifestly unfair to impose the liability of an insurer on the meat packer through the implication of a warranty that pork is fit for human consumption in a raw state. This is especially true in view of the fact that the danger of infection can be reduced almost to the vanishing point by ordinary cooking methods. Fresh pork is not ordinarily intended to be eaten raw. The warranty should be applied only to food used in the usual rather than in the unusual and improper manner. The court was satisfied that the packer could not be held liable either for negligence or for breach of implied warranty and therefore reversed the verdict of the jury in favor of the plaintiff.—*Cheli v. Cudahy Bros. Co. (Mich.), 255 N. W. 414.*

Corporate Practice of Optometry Illegal.—Harris and others, the relators in the present case, presented to the secretary of state of Ohio articles of incorporation wherein they sought to incorporate the Columbus Optometric Company to engage "in the business of the practice of optometry." The secretary of state refused to accept the application on the ground that "the purpose clause of such articles of incorporation discloses that such corporation is attempted to be formed for the purpose of practicing a profession" in violation of section 8623-3, General Code of Ohio, which prohibits incorporation for profit for the purpose of carrying on the practice of any profession. The relators then sought a mandamus to compel the secretary of state to file the proffered articles of incorporation.

Whatever refinements of reasoning, said the Supreme Court of Ohio, may be brought to bear on the question of whether optometry is a business to be carried on or engaged in or a profession to be practiced, the legislature has definitely placed it in the category of professions. The Ohio law regulating optometry makes it unlawful for any person to practice optometry who is not more than 21 years of age and who has not met the requirements prescribed in the law. Evidence of preliminary education must be furnished and a two year course in optometry completed. The qualifications of the applicant are to be tested by an examination conducted by a board appointed as provided in the law. Not only is good moral character made one of the prerequisites to admission to the examination but the board is authorized to revoke a license for any of the causes enumerated, among which are "gross immorality, grossly unprofessional or dishonest conduct." Throughout these statutory provisions, the court said, the legislature has recognized optometry as a profession. It thus appears, concluded the court, that the secretary of state has not refused to perform a duty enjoined on him by law for which mandamus would lie, but that, on the contrary, in his refusal to accept and file the proposed articles of incorporation

he has acted in obedience to the requirements of section 8623-3, General Code of Ohio. The petition for a writ of mandamus was therefore denied.—*State ex rel. Harris et al. v. Myers, Secretary of State (Ohio), 191 N. E. 99.*

Workmen's Compensation Acts: Rupture of Artery Attributed to Overexertion.—The employee was engaged in pulling a heavily loaded truck, with the assistance of others, up an incline. As a result of the strain incident to the work, it was contended that an artery in his right leg was ruptured and that as a result of this rupture a thrombus developed which lodged in the lower right lung, causing death. The industrial commission awarded compensation to his widow. The circuit court confirmed that award and the plaintiff appealed to the Supreme Court of Wisconsin.

The employee was afflicted with arteriosclerosis in an advanced degree, which condition, said the Supreme Court of Wisconsin, rendered him liable to just such a result as did occur. To a man in his condition, the risk of serious illness or death was increased by unusual exertion. The evidence in the case, continued the court, left no doubt that the artery was extremely brittle and that the rupture was caused by less pressure or exertion than would have been required to cause it in a person of normal condition. This fact, however, did not prevent the rupture from being the result of the employee's work. While compensation, said the court, was not intended to take the place of life insurance, a showing of a fortuitous circumstance happening in the prosecution of one's work and having an open and direct relation to the industry causing injury brings the case within the workmen's compensation act of Wisconsin. The word "accident," as used in workmen's compensation cases, continued the court, includes ruptures resulting from lifting heavy objects. The very serious condition of the employee, warranting a belief that his death was likely to follow almost any exertion, makes this a doubtful case, said the court, but it cannot be said that there was no credible evidence to sustain the finding of the commission that the rupture was caused by the pulling of a heavily loaded truck up a short incline and that this exertion was the cause of the subsequent death. The judgment confirming the award was affirmed.—*Malleable Iron Range Co. V. Industrial Commission (Wis.), 255 N. W. 123.*

Workmen's Compensation Acts: Postponement of Herniotomy as Affecting Compensation.—The employee, May 15, 1924, sustained a double hernia in the course of his employment. A claim for compensation was filed with the department of labor and industries and the employee was notified that he would be required to undergo an operation and make report thereof to the department. In September, the operation not having been performed, the department, without notice to the employee, suspended the claim for compensation. Until March 1933, nothing further happened with respect to the matter. On March 2, 1933, approximately nine years after the accident, the employee was operated on for hernia, without the knowledge of, or any renewed authority from, the department, and a claim for the expenses incident to the operation was filed with the department. The claim was rejected on the ground that the statute of limitations had run against it, and that therefore it could not be reopened for further consideration. The superior court agreed with the finding of the department, and the employee appealed to the Supreme Court of Washington.

The workmen's compensation act of Washington provides that if an employee "shall refuse to submit to such medical or sugical treatment as is reasonably essential to his recovery, the commission may reduce or suspend the compensation of such workman." It will be observed, said the Supreme Court, that the right of the department to reduce or suspend compensation arises out of the refusal of the workman to submit to medical or surgical treatment. The penalty for such refusal is not the denial of the claim in toto, but simply its reduction or suspension. The term "suspend," read in connection with its context, contemplates a temporary withholding of payment pending a submission to treatment, and does not, in the absence of a wilful refusal to comply with a proper order, contemplate an absolute denial of the claim in its entirety. In this case the employee was never notified that his claim had been suspended. From aught that appears in the record, the employee was conscientiously attempting to get along without an operation and without claiming the benefits to which he was, at the time of his injury, admittedly entitled. Having been specifically told by the department that when the operation was performed the claim would go forward for payment, the employee was led to believe, in the absence of a contrary notice, that when the operation became necessary he might then have it performed. The only question for decision here, said the Supreme Court, is whether the order of suspension, without notice to the employee, canceled and terminated all right of compensation. We are clearly of the opinion, concluded the court, that, under the facts in the case, it did not. The judgment of the superior court was therefore reversed with instructions to remand the case to the department with directions to award compensation.—*Urquhart v. Department of Labor and Industries (Wash.), 33 P. (2d) 380.*

Paint Poisoning, Death from Septicemia, and Workmen's Compensation.—Lockhart, a shop foreman, painted vehicles with a "spray gun," as a part of his employment, when there were no painters available. While so painting, April 17, 1932, he was taken sick and symptoms of paint poisoning developed. His body became covered with a rash, he developed an elevation of temperature, and suffered from nausea and cramps. Under medical treatment, he was recovering from the effects of the paint poisoning, when, about the middle of May, a localized infection developed in his ankle. Septicemia ensued and Lockhart died, June 20, 1932. The compensation commissioner declined to award compensation to the widow and she appealed to the Supreme Court of Appeals of West Virginia.

The evidence tended to show that death resulted directly from the infection originating in the ankle. Had death been due directly to the paint poisoning, said the Supreme Court of Appeals, there would be little question as to the right of the widow to compensation, for the evidence showed that Lockhart contracted the paint poisoning following the specific exposure while painting, April 17. Notwithstanding the fact that the paint poisoning was not the direct cause of death, continued the court, the uncontradicted evidence made out a prima facie case of compensability. From the evidence, it is clear that Lockhart would not have died, and indeed might not have suffered at all, from the infection that settled in his ankle, had it not been for his weakened and debilitated condition directly traceable to the paint poisoning. The infection came before his complete recovery from the paint poisoning and its effects. There was, therefore, a clear preponderance of evidence establishing a direct causal connection between the paint poisoning and the death. The order of the compensation commissioner, refusing to award compensation, was therefore reversed and the case remanded for further consideration.—*Lockhart v. State Compensation Commissioner (W. Va.), 174 S. E. 780.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 16-18. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association of Anatomists, St. Louis, April 18-20. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, New York, April 18-19. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Physiological Society, Detroit, April 10-13. Dr. Frank C. Mann, Mayo Clinic, Rochester, Minn., Secretary.

American Society for Experimental Pathology, Detroit, April 10-13. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 10-13. Dr. E. M. K. Geiling, 710 N. Washington Street, Baltimore, Secretary.

American Society of Biological Chemistry, Detroit, April 10-13. Dr. H. A. Mattill, State University of Iowa, Iowa City, Secretary.

Arkansas Medical Society, Fort Smith, April 15-17. Dr. W. R. Brooksher, 602 Garrison Avenue, Fort Smith, Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 10-13. Dr. H. A. Mattill, State University of Iowa, Iowa City, Secretary.

Southeastern Surgical Congress, Jacksonville, Fla., March 11-13. Dr. Benjamin T. Beasley, 478 Peachtree Street, N.E., Atlanta, Ga., Secretary.

Tennessee State Medical Association, Nashville, April 9-11. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

10: 143-286 (Dec.) 1934

Selection of Cases of Thrombo-Angiitis Obliterans and Other Circulatory Diseases of Extremities for Sympathetic Ganglionectomy. G. E. Brown, W. M. Craig and A. W. Adson, Rochester, Minn.—p. 143.
*Position of Heart Valves and Their Relation to Anterior Chest Wall in Living Subjects with Abnormal Hearts. M. C. Sosman and P. H. Wosika, Boston.—p. 156.
Interpretation of Galvanometric Curves Obtained When One Electrode Is Distant from the Heart and the Other Near or in Contact with Ventricular Surface: Part I. Observations on the Cold Blooded Heart. F. N. Wilson, I. G. W. Hill and F. D. Johnston, Ann Arbor, Mich.—p. 163.
Id.: Part II. Observations on the Mammalian Heart. F. N. Wilson, F. D. Johnston and I. G. W. Hill, Ann Arbor, Mich.—p. 176.
*Factors Concerned in Cardiac Hypertrophy: Study Made at Necropsy of Seventy-Nine Cases of Rheumatic Heart Disease. F. A. Willius and H. L. Smith, Rochester, Minn.—p. 190.
Pulmonary and Pleural Complications of Aortic Aneurysm. C. S. Keefer and G. K. Mallory, Boston.—p. 208.
*Total Thyroidectomy in Angina Pectoris: Experimental Study. P. Shambaugh and E. C. Cutler, Boston.—p. 221.
*Interlobar Effusions in Patients with Heart Disease. I. D. Stein and J. B. Schwedel, New York.—p. 230.
Adhesive Mediastinopericarditis with Normal Cardiac Electrical Axis Rotation on Postural Change. J. J. Sampson and H. Rosenblum, San Francisco.—p. 240.
Transient, Recurrent, Complete Bundle-Branch Block: Report of Case. F. A. Willius and M. J. Anderson, Rochester, Minn.—p. 248.

Position of Heart Valves and Relation to Chest Wall.—Sosman and Wosika draw the following deductions with regard to the position of the aortic and mitral valves in patients with abnormal hearts: 1. Both valves are likely to be found on a line 45 degrees from the horizontal, starting at the auriculoventricular groove on the left border of the cardiac shadow, this line corresponding to the position of the auriculoventricular groove. 2. The mitral valve is likely to be more to the left of the midline than the aortic valve, and the latter may be exactly in the midline. 3. The aortic valve usually is more caudad than the mitral valve in relation to the wall of the chest, but it may be more cephalad in relation to the total bulk of the cardiac shadow. This is probably due to the predominance of the left ventricle in aortic disease and to the large dilated auricles in mitral disease. 4. In the right anterior oblique position the two valves may occupy the same position in relation to the cardiac outline. 5. The left anterior oblique view is the best for differentiating between aortic and mitral valve calcifications. Small areas of calcifications visible in the other oblique view may not be visible in this view. If large enough to be seen in the left anterior-oblique position, the mitral valve calcifications will be found to lie in the posterior third of the cardiac shadow, while the aortic valve calcifications are usually in the middle third. If the posterior cusp of the mitral valve is calcified, it may be within 1 cm. from the posterior surface of the heart shadow. 6. In calcified annulus fibrosis cases the shadows are likely to be larger and denser and on the roentgenograms are more homogeneous in appearance than the irregularly mottled calcifications in the mitral leaflets. They occur frequently in patients without discoverable heart disease and are usually found in patients 60 years of age or older. 7. If both valves are calcified, they may move independently; i. e., their dancing excursions with the beat of the heart are not synchronous but consecutive.

Factors Concerned in Cardiac Hypertrophy.—Willius and Smith observed that the greatest average cardiac weight occurred in cases of aortic stenosis. In order of cardiac weight, other lesions occurred in the following sequence: aortic insufficiency, multiple valvular lesions, mitral stenosis and insufficiency, and pure mitral insufficiency. There was a marked correlation between the degree of the lesion and the average weight of the heart. There was a suggestive correlation, evidenced only in some groups, between the average weight of the heart and the interval elapsing from the initial attack of rheumatic fever to death. The condition of four children, who lived only for a short time following their first illness with rheumatic fever and chorea in one case, and three of whom had rather slight valvular defects, strongly suggests that myocardial injury by infection or its toxins in some instances permits the heart to respond by hypertrophy. Although increased cardiac work imposed by the valvular defect or defects appears to be the principal influence in the production of cardiac hypertrophy in rheumatic heart disease, other factors appear to exert a definite but less important influence. Among them is the length of time the heart is subjected to the lesion and actual myocardial injury in a certain group of cases.

Total Thyroidectomy in Angina Pectoris.—Shambaugh and Cutler believe that the resulting lowered metabolism with slowing of the circulation and consequent lessening of the burden on the heart produced by total thyroidectomy in angina pectoris cannot be the entire explanation, in that a beneficial effect has been observed almost immediately after operation, whereas the basal metabolic rate does not begin to fall for over a week. Their experiments on dogs suggest that the early and dramatic change may be due to a change in reaction to epinephrine after operation. They studied the effect of thyroidectomy on the vasopressor action of epinephrine in dogs and found a definitely diminished response in two dogs when tested three and four weeks after thyroidectomy. Three other dogs tested one, two and six weeks after thyroidectomy failed to show this change. The individual variation in this regard may be due to the presence of varying amounts of accessory thyroid tissue. The beneficial effect of the removal of the thyroid in angina pectoris may be due, in part at least, to a diminished effectiveness of the physiologic output of epinephrine. This explanation would imply that the paroxysms of anginal pain in patients with coronary artery disease may be caused by an increase from time to time in the patient's output of epinephrine. Such a concept does not seem entirely unreasonable when it is known that the physical and emotional changes which precipitate attacks of angina are just those which have been shown experimentally to cause an outpouring of epinephrine into the blood stream. It has been demonstrated that injected epinephrine will generally initiate an attack in patients suffering from angina pectoris; so it is quite conceivable that a sudden increase in the secretory activity of the suprarenals might have a similar effect in these patients. Epinephrine, either secreted or injected, might precipitate an attack of angina by causing a constriction of the coronary arteries which would directly produce the myocardial ischemia; or, by raising the blood pressure and heart rate, it may so increase the vascular demands of the myocardium that in the presence of a preexisting narrowing of the coronary artery or of a rigidity preventing a compensatory dilatation it causes a relative myocardial ischemia.

Interlobar Effusions in Heart Disease.—Stein and Schwedel review the clinical course of eighteen cases presenting interlobar effusions and stress the comparative frequency with which the condition is encountered and its relationship to the general problem of myocardial insufficiency. In nearly all the cases studied the effusion was on the right side. Physical signs are comparatively few and the condition is usually an accidental observation in the teleroentgenogram. Verification by puncture is unsatisfactory. Their rapid disappearance with treatment is characteristic and refutes the common conception that diuretic measures are of no avail in the mobilization of chest fluid. This may be true of the ordinary type of hydrothorax, but it does not apply to interlobar fluid. The difference between the two probably lies in the fact that the total fluid area involved is much less, and that the two areas of lung tissue which bound the fissure form a more active resorption surface. The relationship of auricular fibrillation and diseases of the aortic valve to this condition has been stressed by Vessell and Austrian. The authors feel that these are coincidental and are merely expressions of long standing cardiac disease associated with decompensation. Differentially, lung abscesses, tumor nodules or

pulmonary infarcts may closely resemble interlobar effusions, and confusing shadows may be cast by the pectoralis and trapezius muscles, or by localized thickening of the pleura in the general pleural cavity. A density of this sort in a decompensated person, which seems to melt away with the return of compensation, should present no great diagnostic problem.

American Journal of Cancer, New York

22: 765-1034 (Dec.) 1934

*Carcinoid Tumors of Small Intestine: Report of Three Cases with Metastases. Eleanor M. Humphreys, Chicago.—p. 765.
Primary Apical Lung Carcinoma. P. E. Steiner and B. F. Francis, Chicago.—p. 776.
Malignant Neoplasms of Upper Respiratory Tract in the Young: Report of Nine Cases. M. Friedman and S. Rubenfeld, New York.—p. 786.
*Correlation Between Malignancy and Rate of Growth of Tar Warts in Mice. J. C. Mottram, London, England.—p. 801.
*Why Cancer Is Not Recognized Early. W. C. MacCarty, Rochester, Minn.—p. 831.
Mesenchymal Tumor in an Oyster (Ostrea Virginica). G. M. Smith, New Haven, Conn.—p. 838.
Comedo Carcinoma (or Comedo-Adenoma) of Female Breast. J. C. Bloodgood, Baltimore.—p. 842.
Primary Carcinoma of the Lung. C. F. Geschickter, Baltimore, and R. Denison, Harrisburg, Pa.—p. 854.
Survey of Cancer Cases in Hospitals of Bridgeport, Conn., 1928-1932 Inclusive. W. F. Wild, Bridgeport, Conn.—p. 878.

Carcinoid Tumors of the Small Intestine.—In 3,200 necropsies, Humphreys found three examples of carcinoid tumors with metastases in regional lymph nodes. Two of these were multiple carcinoids, one with two, the other with nine independent tumors. In two the lumen of the intestine was narrowed. In the same series there were five solitary carcinoid tumors without metastases, one in the jejunum, three in the ileum and one a carcinoid polyp of the rectum. Thus in this series of necropsies the incidence of all carcinoids was 0.25 per cent; for carcinoids of the small intestine, 0.22 per cent; for multiple carcinoids, 0.06 per cent, and for metastasizing carcinoids, 0.09 per cent. It is evident that the carcinoid tumor of the small intestine is far from a harmless lesion.

Malignancy and Rate of Growth of Tar Warts.—While studying individual warts following prolonged tarring of the skin of mice, Mottram observed a close correlation between malignancy and the high rate of growth. A few warts appear within 100 days after the beginning of tarring, the majority between 100 and 150 days and few after 300 days. The time of appearance of benign warts and of warts which disappear is not different, but malignant warts appear somewhat later. Fast growing warts do not appear earlier than slow growing, but later. Warts when first seen are for the most part sessile; a few are pedunculated. A small proportion of warts are ulcerated when first seen and begin as sores; many of these are then malignant. Many warts at first sessile later become pedunculated. Pedunculated warts are almost always benign, as are also horny warts, whereas warts that remain sessile are largely malignant. The lateral and deep extension of warts observed during life is not a completely reliable sign of a malignant manifestation, since infective conditions lead to exactly similar signs on palpation. The length of life of warts that disappeared varied from four to 190 days. The height of warts was found to be variable. Sometimes a sudden increase in growth was observed, and in all these cases the wart was then found to be malignant. The majority of benign warts have a low growth rate, while malignant warts have a high rate. There is a close association between ulceration and malignancy. Many warts are malignant only locally, since both epitheliomas and simple epithelial cysts resulted from the inoculation of different fragments of the same wart; benign warts likewise vary from fragment to fragment. Autografts give rise to semimalignant epithelial cysts and thus show that warts form a continuous series from malignant, through semimalignant, to benign. The whole wart should be divided in fragments and all the fragments inoculated in order to exclude malignant changes. The author reviews the problem of cancer.

Why Cancer Is Not Recognized Early.—MacCarty selected at random 100 cancers of the stomach removed surgically. Throughout the 100 clinical histories one finds such terms or expressions as pain (dull or sharp, sudden or burning), weakness, tired feeling, nausea, vomiting, flatulence, bloating, sour eructations, feeling of fulness, indigestion, stomach trouble and periodicity of symptoms. Reports of the physical examination, contrary to the classic descriptions in textbooks, show absence of such features as emaciation, palpable tumor in the epigastrium, anasarca, accessory nodules, cachexia, pallor, edema of the legs, hematemesis, tarry stools and loss of weight greater than might be explained by a restricted diet. Strangely, also, gastric acidity was high rather than low, and the hemoglobin records were normal in the great majority of cases. None of these signs, symptoms or laboratory observations are pathognomonic of cancer. All may be found when no cancer is present, as in simple gastric ulcer, duodenal ulcer and, frequently, in association with cholecystitis and even appendicitis. Such symptoms are common in any group of Americans, and certainly not all of these have cancer. It is fair to suspect, however, that some may have cancer, and this cannot be determined by signs and symptoms alone. As long as physicians continue to wait for the textbook picture of cancer they will continue to find a high proportion of hopeless cases. Cancer does occur as a small lesion. As such, its signs and symptoms are not those described for cancer in the textbooks of pathology and of the practice of medicine. Cancers are not recognized early and never will be until physicians learn that there are no characteristic signs and symptoms for early cancer and that the only means of telling whether the condition is gastric, duodenal, appendical or in the gallbladder is by the x-rays. It makes little difference for the present whether pathologists believe that cancer can be diagnosed from cells alone or not. The risk of cancer is still greater than the risk of removing a few benign ulcers, which may be cancer so far as signs, symptoms, roentgen data and gross appearance are concerned.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

32: 717-854 (Dec.) 1934

*Treatment of Cancer of Pharynx, Tonsil and Extrinsic Larynx by Divided Doses of External Radiation. H. E. Martin, New York, and R. F. McNattin, Wilmington, Del.—p. 717.
*Radium Dosage and Technic in Carcinoma of the Breast. G. W. Taylor, Boston.—p. 730.
Radium Dosage and Technic in Benign Lesions of Skin. H. Morrow and L. R. Taussig, San Francisco.—p. 735.
Care and Treatment of Chronic Cancer Cases. I. I. Kaplan, New York.—p. 740.
Significance of Abnormally Shaped Subarachnoid Cisterns as Seen in Encephalogram: Correlation with Clinical Cases. C. G. Dyke and L. M. Davidoff, New York.—p. 743.
Serial Bronchography in Early Diagnosis of Bronchial Carcinoma. P. L. Fariñas, Havana, Cuba.—p. 757.
Practical Observations on Use of Iodized Oil in Bronchography. L. R. Sante, St. Louis.—p. 763.
Present Status of Diagnosis of Renal Tumors. B. H. Nichols, Cleveland.—p. 769.
*Calcification in Intestinal Tuberculosis. C. H. Heacock, Memphis, Tenn.—p. 782.
Photographic Photometry of Roentgen Rays. R. B. Wilsey, Rochester, N. Y.—p. 789.
Dangers of Roentgenoscopy and Methods of Protection Against Them: II. Some Considerations of Size of Beam Used in Roentgenoscopic Examination. E. I. L. Cilley, E. T. Leddy and B. R. Kirklin, Rochester, Minn.—p. 805.
Comparison of Roentgen and Radium Spectrum from Standpoint of Practical Radiation Therapist. R. R. Rathbone, Washington, D. C.—p. 808.

Treatment of Cancer of Pharynx by External Irradiation.—Martin and McNattin describe the treatment of 140 cases of cancer of the pharynx, tonsil and extrinsic larynx by divided doses of external radiation. The first requisite is the careful localization of the tumor by indirect mirror examination. For the examination of the posterior nasopharynx, the soft palate retractor is used. A biopsy is taken at the time of the first examination. With the aid of the palpating finger, the exact situation of the underlying tumor is marked on the skin of the neck by a dye. The relationship of any metastasis is then determined so that the skin portal will amply include both primary growth and metastasis. The size and shape of the skin portal, the direction of the beam and the daily dose are then decided on. At present, the period of treatment is about twenty days, it and the total dose being extended if the clinical course and local and general tolerance so indicate. With portals of from 7 to 10 cm. in diameter, treatment is begun with from 350 to 400 roentgens (measured in air) daily to alternate sides of the neck, so that at the end of twenty treatments the patient has received from 3,500 to 4,000 roentgens to each side. The patients are examined daily and any variations from the

technic originally decided on will depend on the clinical course. At the end of from fifteen to twenty days in some cases it will be found that less than the expected reaction has occurred in both normal and neoplastic tissues. In such cases the daily dose may be raised or the treatment continued beyond the period of twenty days. In cases in which the reaction is unusually early and marked, accompanied by rapid regression of the tumor, the daily dose may be lowered or treatment discontinued before the original plan is completed. In most cases it is best to err on the side of heavy treatment, since a marked reaction is usually followed by prompt healing and excellent regression of the tumor. The authors see no advantage in interrupting the treatment so as to give the patient a rest of several days before completing the original plan, as is recommended in some cases by Coutard. When unusually severe reactions develop, or in the case of a surgical complication such as tracheotomy, the daily sequence of treatments must be temporarily discontinued. If only one portal is used, the authors ordinarily give treatments on alternate days as a matter of convenience. Of 140 cases treated during 1931 and 1932 there remained forty-one free from disease in September 1933.

Radium Dosage in Carcinoma of Breast.—Taylor used interstitial radium treatment in forty selected cases of inoperable carcinoma of the breast. Keynes' platinum needles have been employed with doses ranging from 5,000 to 20,000 mg. hours. Roentgen treatment has been given in addition to radium in most cases. Regression of the local process was secured by treatment in almost all cases and seemed to be better than that which could be secured with roentgen treatment alone. Of the forty patients treated, nineteen are dead. Two of these had favorable regressions of the lesion and died of other causes five months and two years after radium treatment. One lesion proved on pathologic examination to be a gumma rather than carcinoma. Of the twenty remaining cases, eight were treated within six months and are too recent to permit judgment of the effect of treatment. One of the remaining twelve patients was subjected to radical operation six months after the radium treatment and now shows no evidence of disease one year after operation. The remaining eleven cases all present evidence of uncontrolled metastatic disease, nine in the axillary and supraclavicular areas and four in the skeletal system. As regards the immediate effect of the radium treatment, thirty-seven of the cases showed regression of the primary breast lesion, and this has been apparently a permanent arrest in twenty-four cases. Three patients showed no regression of the local process after radium treatment and died rather rapidly. Axillary metastases showed regression after radium treatment in fourteen cases. This was rarely so complete or so lasting as it was in the case of the primary breast lesions. In only five cases was regression observed in nodes in the supraclavicular region. No effect was observed on the propensity to develop remote metastases.

Calcification in Intestinal Tuberculosis.—Heacock points out that calcification is the rule in old tuberculous foci, whereas in other types of infection it is the exception. The most common site for calcareous deposits in tuberculous foci is the lymph nodes, the lungs are second, and the third most common location is probably in the kidneys. Apparently, calcification also occurs in primary lesions of intestinal tuberculosis. The author examined five patients with scattered miliary areas of calcification, apparently in the walls of the cecum. These five cases are reported. The mere presence of calcification in these cases was not interpreted as definite indication of healing or even of the presence of the disease itself. The routine examination of the gastro-intestinal tract was carried out with special regard to the accepted technic to discover intestinal tuberculosis. In all the cases the roentgen signs of the disease were present. The possibility that these shadows might be small flecks of ingested opaque material was eliminated by a second examination and the finding that the shadows were constant in size, contour and position. Calcified abdominal glands possess a different appearance. Although they may be mottled, lime salts occur in collections which outline the contour of the gland. Injections of bismuth and mercury compounds and salts of other metals into the buttocks will sometimes leave an opaque residue which is not absorbed. Shadows thus produced, however, are also in clusters and are not made up of multiple miliary shadows. The clinical history will prevent their being confused with those of tuberculosis. The author does not agree with Steinbach that the signs usually considered diagnostic of intestinal tuberculosis are highly unreliable in more than 52 per cent of cases. The demonstration of calcium, which is possible only by the use of the x-rays, will probably be of the highest value in an estimation of the extent of healing and of benefit of treatment.

Anatomical Record, Philadelphia

61: 1-140 (Dec. 25) 1934

Rapid Method of Preparing Clean Bone Specimens from Fresh or Fixed Material. H. L. H. H. Green, Cambridge, England.—p. 1.
Hair Cycles in Albino Rat. E. O. Butcher, Clinton, N. Y.—p. 5.
Study of Certain Endocrine Effects on Mammary Glands of Female Rats. C. K. Weichert, R. W. Boyd and R. S. Cohen, Cincinnati.—p. 21.
Special Secretory Cells in Transverse Ducts of Frog's Kidney. W. B. Steen, Chicago.—p. 45.
Sympathetic Components of Genitofemoral and Obturator Nerves in Rhesus Monkey (Macaca Mulatta). S. Zuckerman and H. S. Burr, New Haven, Conn.—p. 53.
Golgi Apparatus in Relation to Vacuolation in Basophils of Anterior Pituitary of Castrate and of Cancerous Rats. M. F. Guyer and Pearl E. Claus, Madison, Wis.—p. 57.
Infra-Red Photography in Anatomy: Some Experimental Observations. L. C. Massopust, Milwaukee.—p. 71.
Proposed Classification for Types of Twins in Mammals. G. W. D. Hamlett and G. B. Wislocki, Boston.—p. 81.
Remarks on Synchorial Litter Mates in a Cat. G. B. Wislocki and G. W. D. Hamlett, Boston.—p. 97.
Histogenesis of Muscular Tissue in Amphibia: I. Development of Striated Muscles from Mesenchyma in Urodeles. Z. S. Katznelson, Leningrad, U. S. S. R.—p. 109.
Difference of Response of Pituitary Glands of Male and Female Albino Rats Treated with Growth Hormone. H. S. Rubinstein, Baltimore. —p. 131.

Annals of Internal Medicine, Lancaster, Pa.

8: 661-776 (Dec.) 1934

Arteriolar Infarction. J. C. Meakins, Montreal.—p. 661.
Clinical Implications of Thymus and Status Thymicolymphaticus. A. G. Mitchell and Estelle W. Brown, Cincinnati.—p. 669.
Clinical Manifestations of Amyloidosis. M. B. Rosenblatt, New York. —p. 678.
*Nonpainful Features of Coronary Occlusion. S. M. White, Minneapolis.—p. 690.
Personality Study in Practice of Internal Medicine. E. Weiss, Philadelphia.—p. 701.
Use of Verodigen (Digitalis Glucoside) in Cardiovascular Disease, Its Biologic Assay and Pharmacologic Action. W. D. Stroud, A. E. Livingston, A. W. Bromer, J. B. Vander Veer and G. C. Griffith, Philadelphia.—p. 710.
*Glycogen Formation in Diabetes. F. D. W. Lukens, Philadelphia. —p. 727.
Electrophoresis Studies in Cases of Focal Infection. W. L. Wood, L. B. Jensen and W. E. Post, Chicago.—p. 734.
Conservative Treatment in Occlusive Vascular Diseases of Extremities: Results in One Hundred Cases. S. Perlow, Chicago.—p. 741.
Possible Relation of Blood Groups to Age and Longevity: Note. W. W. Graves, St. Louis.—p. 747.
History of Invention and Development of Stomach and Duodenal Tubes. J. R. Paine, Minneapolis.—p. 752.

Nonpainful Features of Coronary Occlusion.—White points out that an appraisal of the nonpainful features is necessary if accurate diagnosis is to be made in coronary occlusion and if further steps are to be taken in determining during life whether actual necrosis of a considerable or important part of the wall of the heart has occurred. Fever and leukocytosis are signs of infarction whenever this process occurs in any considerable amount anywhere in the body. In coronary thrombosis, the blood pressure is nearly always lowered as compared to previous levels. The pericarditis that develops following coronary infarction is seldom accompanied by demonstrable effusion. Intracardiac thrombosis occurs when the infarction reaches the endocardium. The occurrence is signaled in life only by embolic phenomena. Changes seen in the electrocardiogram vary from striking to changes that are minor and indeterminate. Precordial pain alone is not adequate for the diagnosis of cardiac infarction. Given a patient seized with typical precordial pain, if there is an area of infarction large enough to give fever, leukocytosis, pericarditis, intracardiac thrombosis or considerable changes in the ventricular complexes of the electrocardiogram a long period of rest is advisable to promote firm scarring of the area. A minimum of eight weeks is advised. If the signs of infarction are lacking, less drastic restrictions are in order and the diagnosis may be in question. Pain alone, regardless of how typical its character seems to be, is inadequate for an

accurate and final diagnosis. Rheumatic carditis, pulmonary embolism, disease of the gallbladder and other lesions of the upper portion of the abdomen, and rupture of the aorta with interstitial hematoma present particular difficulties in differentiation. Coronary occlusion may occur without pain and cause gross infarction. Study of the nonpainful features gives the only clues to the diagnosis. Two of the many changes in rate and rhythm, i. e., ventricular tachycardia and heart block, are of particular importance in prognosis and treatment.

Glycogen Formation in Diabetes.—Lukens states that there exists in the diabetic organism a marked capacity to maintain the muscle glycogen at about the same level as is found in fasted normal animals. He has made a comparison of the time relationships of glycogen resynthesis after exercise in normal and in diabetic animals, from which he concludes that (1) in the earlier phases of muscle glycogen recovery the diabetic animal is similar to the normal, and (2) in the later stages, presumably involving the conversion of dextrose to muscle glycogen, the normal animal shows a more rapid resynthesis, although over a recovery period of twenty-four hours the degree of glycogen reformation is the same. The probability that this phase of carbohydrate metabolism is independent of the action of insulin and of the oxidation of carbohydrate is discussed.

Archives of Dermatology and Syphilology, Chicago

31: 1-158 (Jan.) 1935

Work of the Council on Pharmacy and Chemistry in Dermatology and Syphilology. H. N. Cole, Cleveland.—p. 1.
Oral Administration of Potassium Bismuth Tartrate in Treatment of Syphilis. J. A. Kolmer, Philadelphia.—p. 9.
*Excretion of Mercury After Oral Administration of Mercury with Chalk, Yellow Mercurous Iodide and Corrosive Mercuric Chloride. T. Sollmann, Nora E. Schreiber and H. N. Cole, with collaboration of H. DeWolf and J. V. Ambler, Cleveland.—p. 15.
Sulphur Content of Hair and of Nails in Abnormal States: II. Nails. J. V. Klauder and H. Brown, Philadelphia.—p. 26.
Changes in Skin in Chronic Encephalitis. H. Rattner, Chicago.—p. 35.
*Pseudo-Ectothrix: Filamentous Change Noted on Hair Root in Certain Inflammations of the Scalp. F. C. Knowles, H. B. Decker, H. E. Radasch and E. F. Corson, Philadelphia.—p. 38.
Calcifying Epithelioma. R. L. Sutton, in collaboration with R. L. Sutton Jr., Kansas City, Mo.—p. 48.
*Cutaneous Torulosis. U. J. Wile, Ann Arbor, Mich.—p. 58.
Is Spiegler-Fendt Sarcoid a Clinical or Histologic Entity? G. M. Lewis, New York.—p. 67.
Pityriasis Lichenoides et Varioliformis Acuta (Habermann). C. A. Greenhouse and L. C. Rubin, New York.—p. 83.

Excretion of Mercury After Oral Administration.—The excretion of mercury, and presumably its absorption and effective concentration in the blood and the tissues in the case of the oral administration of 0.2 Gm. of mercury with chalk daily and of 0.016 Gm. of yellow mercurous iodide four times per day, were found by Sollmann and his associates to be nearly the same in degree and in course as those obtained with treatment by inunctions, when 4 Gm. of stronger mercurial ointment, containing 50 per cent of mercury, is used daily. These preparations may therefore be expected to give equivalent therapeutic effects. With the use of a dosage of 0.5 Gm. of mercury of chalk daily, the excretion was twice as great as with the dosage of 0.2 Gm. On the basis of its content of mercury, the absorption of yellow mercurous iodide was about twice as great as that of mercury with chalk. The excretion of mercury with the use of 15 mg. of corrosive mercuric chloride a day was between one-fourth and one-third that with the administration of 65 mg. of yellow mercurous iodide daily; this difference corresponded closely to that in the content of mercury, but the excretion with this dosage of corrosive mercuric chloride was probably below the desirable therapeutic level. The amount of mercury excreted rose progressively with the continued administration of each of these preparations and declined rather slowly during the after-period, though more promptly than with the employment of inunctions. This cumulative effect is presumably due to the progressive coating with mercury of the intestinal mucosa, especially the surface of the villi, which produces increasingly large depots for absorption.

Filamentous Change in Inflammations of the Scalp.—Knowles and his co-workers state that certain hairs the roots of which exhibit threadlike wrappings can be found consistently in patients with neurodermatitis of the suboccipital region. In glycerin preparations these filaments seem to follow the contour of the intercellular spaces of the cuticle or of the internal epithelial sheath. When treated with a solution of sodium hydroxide or potassium sulphide the swelling of the hair root tightens the filaments so that they may be mistaken for hyphae. The composition of the threadlike bands has not been determined. The authors believe that the filaments are in the nature of an intercellular exudate thrown out by the internal epithelial sheath as a result of the inflammatory process of the neurodermatitis. If the filaments are characteristic of neurodermatitis they constitute an aid in differential diagnosis.

Cutaneous Torulosis.—Wile reports a case of fatal torulosis with cutaneous lesions differing somewhat from those described previously. Cutaneous manifestations of torulosis can occur as acneform pustules, granuloma-like ulcers and deep-seated abscesses. To these must now be added subcutaneous and deep-seated nodules resembling ecchymoses, varying in size from small plaques to those the size of a hand and having no tendency to ulceration. In histopathologic characteristics cutaneous torulosis conforms to that seen in other organs, modified only by the cutaneous structure. In general it may be described as a caseating, granulomatous process, characterized by enormous numbers of giant cells of the foreign body type, little inflammatory reaction and a peculiar form of caseation, which may lead to ulceration but did not in the present case. From blastomycosis the condition is easily differentiated pathologically by the absence of abscess formation and by the enormous numbers of organisms existing free and contained in giant cells throughout the section. From coccidioidal granuloma it is differentiated not only by the same features that differentiate it from blastomycosis but also by the absence of endosporulation. While few cases occur in the literature, it is suggested that cutaneous manifestations of Torula and indeed torulosis itself may not be so rare as the reported cases would seem to indicate.

Journal of Biological Chemistry, Baltimore

107: 605-804 (Dec.) 1934

Fatty Acids of Phosphatides of Beef Suprarenals. W. C. Ault and J. B. Brown, Columbus, Ohio.—p. 607.
Some Observations Concerning Chemistry of Arachidonic Acid and Its Quantitative Estimation. W. C. Ault and J. B. Brown, Columbus, Ohio.—p. 615.
Proportionality Studies on Catalase. G. W. Marks, La Jolla, Calif.—p. 623.
Polysaccharide of Vitreous Humor. K. Meyer and J. W. Palmer, New York.—p. 629.
Abdominal Fat of the Western Range Horse. H. A. Schuette, Thelma M. Garvin and E. J. Schwoegler, Madison, Wis.—p. 635.
Metabolism of *l*-Cystine and *dl*-Cystine in Growing Dogs Maintained on Diets of Various Protein Contents. J. A. Stekol, New York.—p. 641.
Effect of Fasting, Refeeding and of Variations in Cystine Content of Diet on Composition of Tissue Proteins of White Rat. W. C. Lee and H. B. Lewis, Ann Arbor, Mich.—p. 649.
Quantitative Studies of Composition of Glomerular Urine: XII. Concentration of Chloride in Glomerular Urine of Frogs and Necturi. B. B. Westfall, T. Findley and A. N. Richards, Philadelphia.—p. 661.
Electrolytes in Serum of the Rat. P. K. Smith and A. H. Smith, New Haven, Conn.—p. 673.
Inorganic Salts in Nutrition: X. Electrolyte Balance in Serum of Rats Receiving Diet Deficient in Inorganic Constituents. A. H. Smith and P. K. Smith, New Haven, Conn.—p. 681.
Id.: XI. Changes in Composition of Whole Animal Induced by Diet Poor in Salts. A. E. Light, P. K. Smith, A. H. Smith and W. E. Anderson, New Haven, Conn.—p. 689.
Fat Soluble Vitamins: XLI. Carotene and Vitamin A Content of Colostrum. J. Semb, C. A. Baumann and H. Steenbock, Madison, Wis.—p. 697.
Id.: XLII. Absorption and Storage of Vitamin A in the Rat. C. A. Baumann, Blanche M. Riising and H. Steenbock, Madison, Wis.—p. 705.
New Procedure for Estimation of Bile Salts in Body Fluids Based on Bile Salt Hemolysis. S. S. Lichtman, New York.—p. 717.
Liver Glycogen: Note on Blood Sugar Level. M. Caroline Hrubetz and L. B. Dotti, New York.—p. 731.
Fate of Antirachitic Factor in the Chicken: III. Effective Levels and Distribution of Factor from Cod Liver Oil and from Irradiated Ergosterol in Certain Tissues of the Chicken. W. C. Russell, M. W. Taylor and D. E. Wilcox, New Brunswick, N. J.—p. 735.
Bence-Jones Protein in Serum. D. M. Kydd, New Haven, Conn.—p. 747.
Prosthetic Group of Limulus Hemocyanine. J. B. Conant, F. Dersch and W. E. Mydans, Cambridge, Mass.—p. 755.
Peroxidase. A. K. Balls and W. S. Hale, Washington, D. C.—p. 767.
Electrometric Titration of Lecithin and Cephalin. T. H. Jukes, Berkeley, Calif.—p. 783.

Journal of Clinical Investigation, New York

14: 1-142 (Jan.) 1935

Validity of Rapid Determinations of Osmotic Pressure of Protein Solutions. H. S. Wells, D. G. Miller Jr. and B. M. Drake, Nashville, Tenn.—p. 1.

*Exchange of Lipids in Umbilical Circulation at Birth. E. M. Boyd and K. M. Wilson, Rochester, N. Y.—p. 7.

Venous Pressure and Posture in Normal Young Women. Josephine M. McIntire and Abby H. Turner, South Hadley, Mass.—p. 16.

Surgical Treatment of Essential Hypertension. I. H. Page and G. J. Heuer, New York.—p. 22.

Effect of Renal Denervation on Level of Arterial Blood Pressure and Renal Function in Essential Hypertension. I. H. Page and G. J. Heuer, New York.—p. 27.

Some Effects of Exercise on Urinary Sediment. A. M. Roberts, Los Angeles.—p. 31.

Protein Content of Subcutaneous Edema Fluid in Heart Disease. R. G. Bramkamp, San Francisco.—p. 34.

Calorigenic Action of *d*-Thyroxine and *l*-Thyroxine. W. T. Salter, J. Lerman and J. H. Means, Boston.—p. 37.

Experimental Study of Clinical Vitamin B Deficiency. Katharine O'Shea Elsom, Philadelphia.—p. 40.

Histologic Study of Arterioles of Muscle and Skin from Arm and Leg in Individuals with Coarctation of Aorta. A. Graybiel, A. W. Allen and P. D. White, Boston.—p. 52.

Metabolic Measurement of Water Exchange. P. H. Lavietes, New Haven, Conn.—p. 57.

Influence of Ionized Air on Normal Subjects. L. P. Herrington, New Haven, Conn.—p. 70.

Studies of Total Pulmonary Capacity and Its Subdivisions: VIII. Observations on Cases of Pulmonary Fibrosis. A. Hurtado, N. L. Kaltreider, W. W. Fray, W. D. W. Brooks and W. S. McCann, Rochester, N. Y.—p. 81.

Id.: IX. Relationship to Oxygen Saturation and Carbon Dioxide Content of Arterial Blood. A. Hurtado, N. L. Kaltreider and W. S. McCann, Rochester, N. Y.—p. 94.

*Concerning Naturally Occurring Porphyrins: I. Isolation of Coproporphyrin I from Urine in a Case of Cinchophen Cirrhosis. C. J. Watson, Minneapolis.—p. 106.

*Id.: II. Isolation of Hitherto Undescribed Porphyrin Occurring with Increased Amount of Coproporphyrin I in Feces of a Case of Familial Hemolytic Jaundice. C. J. Watson, Minneapolis.—p. 110.

*Id.: III. Isolation of Coproporphyrin I from Feces of Untreated Cases of Pernicious Anemia. C. J. Watson, Minneapolis.—p. 116.

Resistance to Fibrinolytic Activity of Hemolytic Streptococcus, with Especial Reference to Patients with Rheumatic Fever and Rheumatoid (Atrophic) Arthritis. W. K. Myers, C. S. Keefer and W. F. Holmes Jr., Boston.—p. 119.

Antitryptic Activity of Synovial Fluid in Patients with Various Types of Arthritis. W. F. Holmes Jr., C. S. Keefer and W. K. Myers, Boston.—p. 124.

Inhibition of Tryptic Digestion of Cartilage by Synovial Fluid from Patients with Various Types of Arthritis. C. S. Keefer, W. F. Holmes Jr. and W. K. Myers, Boston.—p. 131.

Ability of Nephritic Patients to Deaminize and Form Urea from Ingested Glycine. E. Kirk, New York.—p. 136.

Exchange of Lipids in Umbilical Circulation.—Boyd and Wilson present evidence indicating that certain lipids are added to umbilical blood by the placenta and removed or absorbed by the fetus. Whole blood from the umbilical artery at birth contained 22 per cent less phospholipids and 14 per cent less free cholesterol than whole blood from the umbilical vein. Ester cholesterol was also lower in arterial blood but only when venous blood contained more than 10 mg. per hundred cubic centimeters of this lipid. Neutral fat was lower in about half the cases and higher in the other half. The results were considered to signify that phospholipid and free cholesterol are regularly absorbed by the human fetus from umbilical blood at birth, ester cholesterol providing that there is sufficient (more than 10 mg. per hundred cubic centimeters) to be absorbed while neutral fat may be either absorbed or given up. It was estimated that more than 40 Gm., 75 per cent of which is phospholipids, of these substances are absorbed in twenty-four hours by an average large, well nourished human fetus at birth. Whole blood which lies in the placenta between the time that the cord is clamped and the time that the placenta separates from the uterine wall was found to acquire additional amounts of phospholipids in twelve of fourteen cases, free cholesterol in three fourths of the cases, ester cholesterol in two thirds and neutral fat in half of the cases. It was concluded that the placenta adds all of these substances to umbilical blood and may remove some of them, especially neutral fat. Phospholipids, free cholesterol and ester cholesterol therefore pass in general in one direction, namely, from the placenta to the fetus, while neutral fat may pass in either direction. The composition of fatty acids in plasma from the umbilical vein were found similar, in respect to their iodine number, to those of adult plasma except phospholipid fatty acids, which are apparently more saturated in the fetal circulation. It is probable that the fetus absorbs the more saturated phospholipid fatty acids and that it has an especial avidity for the cephalin fraction of the phospholipids. The white blood cells of fetal blood contain about half the lipid concentration of adult leukocytes, which is probably due to the greater proportion of lymphocytes in the blood of the fetus at birth. No evidence was obtained that they function in the transport of fat from the placenta to the fetus or vice versa.

Isolation of Coproporphyrin I from Urine in Cinchophen Cirrhosis.—Watson isolated a porphyrin from the urine of a patient with cirrhosis of the liver, the latter probably caused by cinchophen. It has been identified by virtue of the ester melting point and spectroscopic character as coproporphyrin I. There was no suggestion in the behavior or appearance of the patient's erythrocytes, during life, of bone marrow irritation. There is little reason, therefore, to assume that this increase of coproporphyrin in the urine occurred because of increased formation in the marrow such as is the case in congenital porphyrinuria and pernicious anemia. Rather than derived from excessive formation in the marrow, it was believed that the porphyrin isolated was the normal coproporphyrin of the urine, increased because of the damaged excretory power of the liver. Van den Bergh has recently discussed the retention of coproporphyrin in the blood serum in obstructive jaundice. He obtained experimental evidence to suggest that the coproporphyrin of the bile is formed in the liver. According to this, one would expect relatively large amounts of urinary coproporphyrin in simple obstructive jaundice, and smaller amounts or none in jaundice due to liver disease. This was apparently not true in the author's case, since there was advanced liver disease. The damage was fairly well limited to the periphery of the lobules and there was obviously a definite biliary obstruction. In three cases of common duct obstruction due to stone, the urine was found to contain definite but only moderate increases of coproporphyrin, much less in amount than in the case of cinchophen cirrhosis. Coproporphyrin or porphyrin was not isolated in the urine from a patient who later died of hepatic insufficiency due to advanced hepar lobatum.

Porphyrin in Feces of Familial Hemolytic Jaundice.—A heretofore undescribed porphyrin whose methyl ester melts at from 202 to 203 C., having some of the characteristics of a deuteroporphyrin but differing from the deuteroporphyrins spectroscopically, has been isolated by Watson from the feces in a typical case of familial hemolytic jaundice in which a "hemolytic crisis" was present at the time the feces were collected. This porphyrin occurred in association with a marked increase of coproporphyrin I. In four other cases of the same disease the excretion of coproporphyrin was moderately increased, and in two of these instances it was again isolated and shown to be coproporphyrin I. If this coproporphyrin is to be related to the protoporphyrin of the erythrocytes, as described by van den Bergh, the latter would have to correspond to etioporphyrin I. The possibility of independent formation in the marrow erythroblasts must also be considered.

Isolation of Coproporphyrin I from Feces in Untreated Cases of Pernicious Anemia.—Watson has obtained coproporphyrin I also from the feces in two typical cases of pernicious anemia during relapse and has identified it by virtue of the ester melting point and absorption spectrum. In one of these, studied again after the liver had induced a remission, the amount was obviously decreased and too small to isolate. In similar amounts of feces from two normal subjects and four having anemias of other types, the amounts were too small to permit of isolation.

Journal of Comparative Neurology, Philadelphia

60: 355-530 (Dec. 15) 1934

Aberrant Pyramidal Fascicles in the Cat. R. L. Swank, Chicago.—p. 355.

Optic System of Teleost Holocentrus: I. Primary Optic Pathways and Corpus Geniculatum Complex. R. G. Meader, New Haven, Conn.—p. 361.

Pattern of Cortical Injury in the Rat and Its Relation to Mass Action. N. R. F. Maier, Ann Arbor, Mich.—p. 409.

Relation Between Axone Diameter and Myelination Determined by Measurement of Myelinated Spinal Root Fibers. D. Duncan, Galveston, Texas.—p. 437.

Differentiation of Peripheral and Central Acoustic Apparatus in the Frog. O. Larsell, Portland, Ore.—p. 473.

Journal of Thoracic Surgery, St. Louis

4: 107-222 (Dec.) 1934

Malignant Disease of the Lung. A. T. Edwards, London, England. —p. 107.
*Bronchiogenic Carcinoma: Classification in Relation to Treatment and Prognosis. W. M. Tuttle, Detroit, and N. A. Womack, St. Louis. —p. 125.
*Topographic Classification of Primary Cancer of Lung: Its Application to Operative Indication and Treatment. C. B. Rabin and H. Neuhof, New York.—p. 147.
*Bronchial Carcinoma: Bronchoscopic Biopsy in a Series of Thirty-Two Cases. C. L. Jackson and F. W. Konzelmann, Philadelphia.—p. 165.
Total Removal of Right Lung for Carcinoma: Report of Successful Case. R. H. Overholt, Boston.—p. 196.
Lobectomy for Carcinoma of the Lung. C. Eggers, New York.—p. 211.

Bronchiogenic Carcinoma.—Tuttle and Womack state that most, if not all, primary carcinomas of the lung are bronchiogenic. At present a more detailed genetic classification is not justified. They tend to extend by the blood stream or by definite lymphatic pathways. The course of the disease as well as its symptomatology depends to a large extent on the portion of the bronchial tree in which the tumor arises. Tumors of the major bronchi give symptoms earlier, extend more slowly and are more amenable to surgical treatment. Tumors of the minor bronchi and the periphery of the lung cause fewer early symptoms and are more rapidly fatal. Histologic grading according to cellular differentiation, while it may offer some information, is subject to various interpretations and inaccuracies and must be used with great care.

Classification of Primary Cancer of Lung.—Rabin and Neuhof analyzed 250 cases of primary cancer of the lung, in which 100 necropsies were done, with the object of classification for clinical purposes. Only the gross topographic features of cancer of the lung proved to be of aid in classification as to probable operability or probable nonoperability. The authors identify and describe two main groups, termed the circumscribed and the noncircumscribed types. The circumscribed type comprises a fourth of the cases. Cancers of the circumscribed type occupy the parenchymal and peripheral zones and are termed parenchymal and peripheral tumors. Regional lymph node involvement occurs later and is limited. The peripheral tumors grow from branch bronchi and may therefore be termed branch bronchus circumscribed tumors. The noncircumscribed type, to which three fourths of pulmonary cancers belong, comprises tumors growing from the main and the branch bronchi. These neoplasms are termed main bronchus and branch bronchus tumors. They present the usual invasive characteristics of cancer in the great majority of cases. Clinical, roentgenographic and bronchoscopic features serve to differentiate the circumscribed from the noncircumscribed types, on the basis of which the diagnosis as to type can be made accurately. Peripheral (branch bronchus localized type) and parenchymal tumors tend to fall into the class of operability. The great majority of main bronchus and branch bronchus tumors (with the exception of the peripheral type) do not fall into the operable class, in the sense of surgical eradication, at the time at which patients suffering from these lesions ordinarily come under observation. The indications for operation, based on the topographic classification, are outlined and five operative cases are described as illustrations of the selection of cases for operative treatment on the basis of topographic features.

Bronchial Carcinoma.—During the last four and one-half years Jackson and Konzelmann have seen thirty-two cases of bronchopulmonary cancer in which bronchoscopic biopsy was confirmative. In all but three cases the endobronchial lesion was thought to be primary. The cardinal indication for diagnostic bronchoscopy is clinical or roentgenologic evidence of bronchial obstruction (a wheeze or an area of obstructive atelectasis or obstructive emphysema), and in no connection is it more valuable than in the early diagnosis of bronchial carcinoma. In addition to affording means of diagnosis, bronchoscopy will give the surgeon "definite evidence regarding the level at which the lobe or lobes must be amputated to reach the upper limits of the tumor" (Churchill). After roentgenographic localization of the lesion in both planes, the bronchoscope is passed down to the suspected area and the bronchial orifices are inspected. If fungating tissue is found in any of them, removal of an ample amount is easy. If there is no definite involvement of the bronchial wall, but only a compression or bulge, biopsy should be postponed. It is necessary to inspect the lesion carefully and to make certain to get tissue representative of the tumor itself and not just the peripheral "inflammatory zone." In many cases granulations are produced in the vicinity of the lesion and, of course, tissue removed from these will not show the growth. Bronchogenic tumors must be graded with caution. In the study of biopsy material from bronchogenic tumors, the fragment is by necessity small and often represents only a small part of the tumor. It has been the authors' experience that several specimens taken at various intervals have shown different degrees of malignancy as this is determined by cytologic structure. It has been their practice to correlate the information obtained by bronchoscopy, roentgenography and microscopic study of biopsy material. The sum of these three indicates the course to be pursued. Biopsy distinguishes inflammation and benign and malignant growths. Roentgenography and bronchoscopy guide the treatment.

Kentucky Medical Journal, Bowling Green

33: 1-50 (Jan.) 1935

Angina Pectoris. R. E. Smith, Henderson.—p. 11.
The Business Side of Medicine. W. B. Atkinson, Campbellsville.—p. 16.
Hernias of Urinary Bladder. G. P. Grigsby, Louisville.—p. 19.
Hay Fever: Present Status of Methods Used in Treatment of Hay Fever. A. E. Cohen, Louisville.—p. 24.
Id.: Vernal Conjunctivitis. A. E. Leggett, Louisville.—p. 26.
Discussion of Temple Treatment of Eclampsia. O. Allen, McHenry. —p. 30.
The Menace of the Human Defective. J. S. Boggess, Louisville.—p. 33.
Selection of Peptic Ulcers for Surgical Treatment. F. W. Rankin, Lexington.—p. 39.
Radical Operation for Carcinoma of Penis: Report of Two Cases. J. D. Hancock, Louisville.—p. 44.

Laryngoscope, St. Louis

44: 927-998 (Dec.) 1934

Facial Nerves: I. Prickle Cell Epitheliomas of Ear with Involvement of Facial Nerve in Tympanum. W. C. Denison, New York.—p. 927.
Id.: II. Otitic Hydrocephalus: Report of Case. C. H. Smith, New York.—p. 931.
*Id.: III. Simple Surgical Method of Dealing with Salivary Calculi in Submaxillary Ducts. A. L. Beck, New Rochelle, N. Y.—p. 935.
Present Status of Diathermy or Electrocoagulation in Treatment of Tonsil Disease. E. R. Roberts, Bridgeport, Conn.—p. 941.
Newer Clinical Approaches: I. Nutritional Influences. W. Weston, Columbia, S. C.—p. 948.
Id.: II. Autonomic Level. F. Blackmar, Columbus, Ga.—p. 959.
Id.: III. Newer Clinical Uses of Insulin. S. M. Beale Jr., Sandwich, Mass.—p. 966.
Conservative Treatment of Chronic Suppurative Otitis Media: Efficacy of Iodine Dusting Powder in Local Therapy. O. R. Kline, Camden, N. J.—p. 976.

Salivary Calculi.—Beck states that the chief difficulties in the removal of a salivary calculus may be overcome if the parts can be immobilized at will while the work proceeds. This immobilization is accomplished by means of silk traction sutures temporarily placed for the duration of the operation. The tissue is grasped close to and beneath the papilla with small forceps, and one suture is placed on each side of the wall of the duct through its orifice and given to an assistant, who exerts countertraction, converting the small orifice into a fairly large slit. At the same time this traction brings about immobilization of that submaxillary gland duct and lifts the duct away from the floor of the mouth. The sutures may be held by an assistant or may be conveniently hooked round the teeth, at the point of emergence from the mouth. With the duct orifice thus held in position, a Bowman lacrimal probe is passed for detection of the calculus, after which a Bowman canaliculus knife is inserted and the duct slit open far enough to expose the calculus. At a depth adjacent to the calculus it may be necessary to complete the slitting with scissors. When thus exposed, removal of the stone is not difficult.

Missouri State Medical Assn. Journal, St. Louis

32: 1-36 (Jan.) 1935

Ocular Complications of Gonorrhea. C. M. Swab, Omaha.—p. 1.
Yeastlike Fungous Infection of Conjunctiva: Report of Case. A. A. Drake, Rolla.—p. 6.
Diagnosis and Treatment of Perinephric Abscess. J. R. McVay, Kansas City.—p. 10.
Diagnosis of Childhood Type of Tuberculosis. H. L. Mantz, Kansas City.—p. 13.
Treatment of Childhood Tuberculosis. H. C. Berger, Kansas City. —p. 20.
Chronic Prostatitis: Its Benefits and Dangers in Prostatic Urogenic Obstruction. D. B. Stutsman, St. Louis.—p. 24.
Transurethral Prostatotomy: Motion Picture Demonstration. N. S. Moore, St. Louis.—p. 25.

Radiology, Syracuse, N. Y.

23: 651-780 (Dec.) 1934

Anomalies of Colon: Their Roentgen Diagnosis and Clinical Significance: Résumé of Ten Years' Study. J. L. Kantor, New York. —p. 651.

*Sources of Error in Oral Cholecystography, with Suggested Methods of Correction. W. H. Stewart and H. E. Illick, New York.—p. 663.

Value of Encephalography as Diagnostic and Therapeutic Agent. W. D. Abbott, Des Moines, Iowa.—p. 672.

Renal Rickets: Report of Case. B. H. Nichols and E. L. Shiflett, Cleveland.—p. 677.

International Recommendations for X-Ray and Radium Protection. Revised by the International X-Ray and Radium Protection Commission at the Fourth International Congress of Radiology, Zurich, July 1934.—p. 682.

A Roentgenologist's View of the Minimal Tuberculous Lesion. C. C. Birkelo, Detroit.—p. 686.

*Encephalography in Alzheimer's Disease. W. C. Menninger, Topeka, Kan.—p. 695.

Calcification of Abdominal Aorta. M. Feldman, Baltimore.—p. 700.

Illustrative Case of Syringomyelia Treated with Roentgen Rays: General Discussion of Effect of Radiation on This Disease. H. Fried, New York.—p. 705.

Inhibition of Growth in Pollen and Mold Under X-Ray and Cathode Ray Exposure. C. P. Haskins and C. N. Moore, Schenectady, N. Y. —p. 710.

Application of Kymoroentgenography to Diagnosis of Cardiac Disease: Part II. I. S. Hirsch, New York.—p. 720.

Some Mathematical Aspects of Radiation Dosage. J. G. Hoffman and M. C. Reinhard, Buffalo.—p. 738.

*Study of Back Scatter for Several Qualities of Roentgen Rays. Edith H. Quimby, C. D. Lucas, A. N. Arneson and W. S. MacComb, New York.—p. 743.

Intensified Method of Oral Cholecystography.—Stewart and Illick have devised the following technic for what they term the "intensified method of oral cholecystography": On the afternoon preceding the Graham test the patient is given two or three cups of weak tea with as much sugar as possible, accompanied by one sweet cake. The dye (3.5 Gm.) is given directly after the evening meal. No breakfast is given the following morning. Study of the gallbladder is undertaken sixteen hours after the administration of the dye, to estimate the mucosal function of concentration. The twelve-hour examination is omitted. Selected foods are then allowed that will not empty the gallbladder, extra sugar being one of the important items. Additional dye is given in small doses during the afternoon and evening, along with more sugar. An examination of the gallbladder for maximal concentration and intensity of the shadow is then made before breakfast the following morning, forty hours after the first dose of the dye. Then a fatty meal is taken and an hour later a study is made of the function of contractability as the viscus empties. Tumors and stones often come to light as the gallbladder empties. Sometimes the patient has to be kept under observation for a number of hours as emptying progresses. There is far more uniformity to the normal intense shadow obtained at the forty-hour observation, whereas many normal cases varied considerably in the shadow density at the sixteen-hour examination with the old technic. The intensified method either does or does not give a shadow, and the faint shadow is more rare than with the former technic. Fluoroscopy of the gallbladder is practical in any case in which a shadow of the gallbladder is obtained. There are certain roentgen improvements which aid in obtaining these better roentgenograms. A fast Bucky diaphragm is now used which permits exposures up to one twentieth of a second. With such a fast technic, fuzziness of the shadow of the gallbladder due to motion is lessened. The contrast obtainable is extreme and the visualization of small calculi is rendered more exact. Compression is an advantage when the patient will permit it. The authors employ a standard technic of 100 milliamperes and one-half second time, with less time in certain cases. A fine focus tube may be used at this milliamperage. The results obtained from a Graham test satisfactorily performed are as follows: (1) The gallbladder is visualized, (2) the gallbladder is faintly visualized, (3) the gallbladder fails to empty properly, (4) there is no distinguishable shadow of the gallbladder and (5) gallstones are present. With any of these observations, one may make certain mistakes of interpretation, the problems of which are discussed.

Encephalography in Alzheimer's Disease.—Menninger reports a case presenting the typical history, physical signs and mental picture of Alzheimer's disease, in which encephalography was used to exclude the remote possibilities of a brain tumor and to support conclusively the diagnosis of Alzheimer's disease. Encephalography indicates the explanation of the symptoms and supports the repeatedly reported observations of the pathologic condition, namely, the marked brain atrophy, in this instance more pronounced on the one side than on the other.

Study of Back Scatter for Roentgen Rays.—Quimby and her associates point out that the amount of scatter depends on the quality of the radiation, the nature of the material on which it impinges, the volume of the material and the area of the beam. The relative amount of scattered radiation is different in different directions, being greatest in the forward and least in the backward direction. The portion scattered backward is of particular interest, because of its contribution to the dose delivered at the surface of the body. This dose consists in part of radiation from the primary beam and in part of that scattered back by the underlying tissues. Since all depth doses are determined in relation to the surface dose, it is necessary to know this accurately. Moreover, it is not possible to determine the erythema dose in terms of physical units (roentgens) until the intensity of a beam as measured in air can be related to that on the surface of the body. Most of the disagreements in measuring back scatter may be explained by variations in the experimental conditions. This is particularly true in the case of physical measurements, in which instance the nature and material of the ionization chamber are extremely important. When approximately the same experimental conditions are used, there is fair agreement in the results obtained. The method of choice so far has been the use of the small ionization chamber of organic materials, the assumption being that its walls have no effect on the results. Some of these chambers, when calibrated against a standard open air chamber, agree with it over a wide range of quality of radiation. However, the scattered radiation contains components of very long wavelength, which may be more or less completely absorbed in the walls of the chamber. At the same time, the secondary radiation from these walls and from the inner electrode may introduce a disturbing factor. The authors studied the problems of back scatter in radiation by measuring it with a new type of ionization chamber. They found that values of percentage scatter obtained in this way are considerably higher than those obtained with so-called air wall ionization chambers. The scatter increases with the irradiated area and with the effective wavelength of the radiation, the two effects being independent of each other. Tables are given for the total radiation, including back scatter, for a range of fields and qualities, for the variation in total radiation with field for any quality, and for the variation with quality for any field.

Southwestern Medicine, Phoenix, Ariz.

18: 391-434 (Dec.) 1934

Special Phases of Medical Economics. H. Taylor, Fort Worth, Texas. —p. 391.

Appendicitis. C. W. Mayo, Rochester, Minn.—p. 397.

Industrial Accident Neuroses: Suggestions for Appraisal and Treatment. L. C. Marsh, Tucson, Ariz.—p. 403.

Tuberculosis as Seen in Postmortem Examinations of Children. W. W. Waite, El Paso, Texas.—p. 408.

Transurethral Prostatic Resection. H. Wear, Denver.—p. 411.

Significance of Blood Picture in Acute Surgical Infections. A. E. Winsett, Amarillo, Texas.—p. 415.

Tennessee State Medical Assn. Journal, Nashville

27: 471-518 (Dec.) 1934

The Newer Concepts of Cardiovascular Syphilis. F. A. Willius, Rochester, Minn.—p. 494.

Wisconsin Medical Journal, Madison

34: 1-76 (Jan.) 1935

Open Reduction Treatment of Fractures. J. A. Jackson, Madison. —p. 11.

Scarlet Fever. M. J. Fox, Milwaukee.—p. 19.

Diagnostic and Therapeutic Considerations in Management of Acute Intestinal Obstruction. O. H. Wangensteen, Minneapolis.—p. 24.

Torsion of Spermatic Cord. C. R. Marquardt, Milwaukee.—p. 33.

Safety Spectacles for the Color Blind. V. A. Chapman, Milwaukee. —p. 35.

Cataract Extractions: Report of One Hundred and Eight Intracapsular and Forty-Seven Extracapsular. E. E. Carl, Milwaukee.—p. 37.

Toxic Pruritus Secondary to Chronic Nephritis. M. J. Reuter, Milwaukee.—p. 38.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

46: 515-564 (Dec.) 1934

Eczema as Clinical Entity and Its Fundamental or Essential Lesion. H. G. Adamson.—p. 515.
*Self-Healing Primary Squamous Carcinoma of Skin. J. S. Dunn and J. F. Smith.—p. 519.
Diagnosis and Treatment of Scleroderma and Acrosclerosis, and Some of Their Kindred Diseases. J. Sellei.—p. 523.

Self-Healing Primary Squamous Carcinoma of Skin.—Dunn and Smith recently described a case of multiple primary skin cancer in a young man, with spontaneous healing of many of the lesions, and no sign of metastasis in a period of seven and a half years. In sections in the early stages, a highly malignant-looking condition was observed and, as the lesion grew older, differentiation of the cells became greater, the epithelial pearls became more completely cornified, and ultimately healing took place, with replacement of the corium by scar tissue, in which here and there degenerate remnants of epithelial pearls might be detected. The normal pattern of the corium was lost and the elastic tissue largely destroyed. In a similar case the authors cannot say what the course would have been had the lesion not been excised, but in from three to five weeks it had reached a size which squamous epithelioma usually takes as many months to attain. Rapidity of growth is usually associated with early involvement of the regional glands, but this was not so in this case. The authors think that they may be dealing with something which is not quite cancer in the ordinarily accepted sense but which cannot in its early stages be differentiated from cancer, either histologically or clinically. It is not impossible that some of the cases of primary epithelioma that are diagnosed clinically, excised, proved histologically and cured permanently are examples of the condition which they describe, and that, if they had been left to develop naturally, they would have gone through the series of changes ending in spontaneous cure. Against this view is the fact that the lesions in their two cases reached a considerable size, and experience teaches that epitheliomas that have been allowed to reach a diameter of 3 cm. do badly, even with extensive surgical procedures.

British Journal of Experimental Pathology, London

15: 321-400 (Dec.) 1934

Studies on B Virus: III. Experimental Disease in Macacus Rhesus Monkeys. A. B. Sabin.—p. 321.
*Observations Concerning Mechanism of Parathyroid Hormone Action. J. B. Collip, L. I. Pugsley, H. Selye and D. L. Thomson.—p. 335.
Immunization of Animals with Formolized Tissue Cultures of Rickettsia from European and Mediterranean Typhus. I. J. Kligler and M. Aschner.—p. 337.
*Observations on Properties of the Vi Antigen of Bacillus Typhosus. A. Felix, S. S. Bhatnagar and R. Margaret Pitt.—p. 346.
Antigenic Differences Between Related Bacterial Strains: Criticism of Mosaic Hypothesis. F. M. Burnet.—p. 354.
New Agent for Stimulating Metabolism: Dinitro-Ortho-Cyclopentylphenol (Preparation 2769/1) and Its Action on Basal Metabolic Rate. F. E. C. Devegney.—p. 360.
Action of Human Blood on Meningococcus. N. Silverthorne and D. T. Fraser.—p. 362.
Production of Tumors in Fowl with Colloidal Solution of 1: 2: 5: 6-Dibenzanthracene. I. Berenblum and L. P. Kendal.—p. 366.
Immunologic Relationships of Pseudorabies (Infectious Bulbar Paralysis, Mad Itch). A. B. Sabin.—p. 372.
Flocculable Substance of Vaccinia: Effect on Its Antigenic Properties of Adsorption on Collodion Particles. M. H. Salaman.—p. 381.
Agglutinogens of Strain of Vaccinia Elementary Bodies. J. Craigie and F. O. Wishart.—p. 390.

Mechanism of Parathyroid Hormone Action.—Collip and his associates carried out complete removal of the kidneys in eight male albino rats. The animals were injected with 40 units of parathyroid hormone twice daily for two days and killed forty-eight hours after the operation. The lower ends of the femurs were decalcified with nitric acid, stained with hematoxylin and eosin and examined histologically: all showed marked signs of osteoclastic bone resorption. From this the authors conclude that the action of the parathyroid hormone on the bones is independent of any direct influence it may have on the renal threshold for phosphates. Since the histologic changes in the bones in hypervitaminosis D are entirely different from those observed in experimental hyperparathyroidism, it is difficult to believe that viosterol acts merely by stimulating production of the parathyroid hormone.

Properties of Vi Antigen of Bacillus Typhosus.—Felix and his associates present observations on some of the properties of the Vi antigen (an antigen of special virulence in strains of Bacillus typhosus). The Vi antigen of Bacillus typhosus can be demonstrated by the inagglutinability of the living organisms by pure O serum or by agglutination with pure Vi serum. The two methods give equally reliable results. The development of Vi antigen is suppressed by growing virulent strains of Bacillus typhosus at temperatures between 20 and 25 C. and also between 40 and 44.5 C. The application of this technic to similar studies in other bacterial species is suggested. The heat resistance of the Vi antigen is described as it is reflected by agglutination and absorption tests and by antibody formation in the rabbit. Sodium chloride extracts of cultures of virulent strains of Bacillus typhosus contain Vi antigen precipitable by pure Vi antiserum. The use of formolized extracts is suggested for the preparation of relatively potent Vi antiserum.

British Journal of Ophthalmology, London

18: 673-720 (Dec.) 1934

Critical Values for Light Minimum and for Amount and Rapidity of Dark Adaptation. C. E. Ferree, G. Rand and M. R. Stoll.—p. 673.
*Primary Glaucoma: Respective Values of Different Forms of Treatment of This Disease. G. H. Burnham.—p. 687.
Foreign Bodies In and About the Eyeball: Three Unusual Cases. F. T. Tooke.—p. 695.
Phenomenal Visual Acuities of European Chimney Swallow. S. Holth.—p. 703.

Primary Glaucoma.—Burnham divides primary glaucoma into two kinds: the form associated with noncupping of the optic disk and that which has cupping of the optic disk. He believes that the noncupping variety of glaucoma is due to a certain type of cyclitis without the exudation of ordinary cyclitis but with the property of causing plus tension, and that the variety of glaucoma associated with cupping of the optic disk is not due to a cyclitis, to begin with, but rather owes its origin to an inflammation of the optic disk and of the nerve immediately behind it. His conclusions are that in the beginning nearly all cases of the noncupping and cupping varieties of glaucoma can, with few exceptions, be cured by the use of scopolamine, mercury and iodide and bromide of sodium. If, however, the improvement is not satisfactory, the combined treatment may be used; that is, operation combined with the foregoing treatment. The author relies more on the medicinal treatment than the treatment by operation. In the cupping variety, he believes that in the beginning the medicinal treatment or the combined treatment is superior to the operative. In the noncupping variety, if only one eye is diseased and the other apparently not, the treatment will prevent the onset of glaucoma in the good eye. He states that his results show how wide and beneficial is the action of the nonoperative system, as advocated by him. His feeling is that the operative treatment is just about useless, being used as a last and the only resort with little belief in its ability to influence the disease.

British Journal of Radiology, London

7: 641-704 (Nov.) 1934

Treatment of Syringomyelia by X-Rays. E. M. Haworth.—p. 643.
Electric Characteristics of Constant High Voltage Generators for X-Ray Work: Part I. Theory of Half Wave Generators. G. E. Bell.—p. 654.
*X-Ray Treatment of Some Uncommon Tumors. R. F. Phillips.—p. 670.
X-Ray Output of Constant Potential High Voltage Apparatus. J. E. Roberts.—p. 685.

Roentgen Treatment of Tumors.—Phillips presents twenty unselected cases of bone sarcoma showing the immediate results of modern high voltage roentgen therapy. Improvement in the general condition of the patient, together with reduction in size of the tumor and relief of local symptoms, occurred in eight cases. Biopsy of the sarcoma to establish its pathologic nature is essential, either before the commencement of roentgen therapy or within the first few days of such treatment. Roentgen therapy of operable osteogenic

sarcoma is not yet justified but may improve the surgical results when applied after operation to the stump and to the thorax. For certain round cell sarcomas, especially the rare plasmocytoma, roentgen therapy is probably the treatment of choice, while temporary alleviation is not infrequently obtained in inoperable sarcomas of all types.

British Medical Journal, London

2: 977-1026 (Dec. 1) 1934

International Action to Control the Spread of Infectious Diseases. G. S. Buchanan.—p. 977.
Treatment of Adolescent Kyphosis. J. Calvé.—p. 983.
Allergy, Metabolism and the Autonomic Nervous System. C. P. Lapage.—p. 985.
Diverticulitis with Unusual Complications: Report of Two Cases. H. Foxell.—p. 988.
Aural Vertigo. W. S. T. Neville.—p. 989.
Tonsillectomy with Local Anesthesia: Review Based on Five Hundred Cases. G. Morey.—p. 990.

2: 1027-1086 (Dec. 8) 1934

*Operative Treatment of Facial Palsy. A. B. Duel.—p. 1027.
Stomach and Duodenum After Operation. S. C. Shanks.—p. 1032.
Relative Advantages of British and Foreign Health Resorts. E. P. Poulton.—p. 1037.
Mediastinal and Apical Empyema. S. J. Hartfall and L. N. Pyrah.—p. 1039.
*Uveoparotid Tuberculosis: Report of Three Cases. S. E. Tanner and A. L. McCurry.—p. 1041.
Clinical Diagnosis of Whooping Cough Without the Whoop. P. R. Evans.—p. 1043.

2: 1087-1136 (Dec. 15) 1934

Pain and Mechanism of Its Production. D. Waterston.—p. 1087.
Arterial Embolectomy. G. Jefferson.—p. 1090.
Ruptured Spleen After Trifling Mishaps: Record of Two Cases. H. Dodd.—p. 1094.
Congenital Heart Block: Case. J. Lewis.—p. 1096.
Subleukemic Lymphadenosis in Child. G. S. Smith.—p. 1097.
Practical Note on Suicide. F. Dillon.—p. 1098.

Operative Treatment of Facial Palsy.—Duel urges immediate investigation of the site of accidental injury in cases of facial palsy. In many instances the removal of a spicule of bone, the lifting of a fractured plate of bone, the decompression and cleansing of 10 mm. or more of nerve with a slitting of the sheath to relieve inflammatory pressure, will ensure an almost perfect recovery, when neglect would be followed by only partial recovery, with grotesque disfiguration for life. When such an investigation reveals the fact that there is an actual section of the nerve or extensive damage, a preliminary incision of the femoral cutaneous nerve may be done immediately and, two or three weeks later, a graft may be transplanted from this to replace the gap. In such a case, for from forty-eight to seventy-two hours after the initial injury one will have the advantage of being able to pick up the distal segment and verify it by faradic stimulation and will know something of the problem to be faced in making the transplant later on. No matter what the length of graft necessary in such cases, recovery is assured if the graft is transplanted successfully. Operation in cases of long standing is indicated whenever there is galvanic response in the muscles sufficient to show that the muscles have not undergone too much fibrous atrophy. The nerve can always be repaired. If there is sufficient muscle fiber left the case will be greatly improved. The quality of the result will always depend on the condition of the muscle: the time element enters largely into this. The author has incised the sheath of the nerves of several cases of Bell's palsy in which the recovery was incomplete and had remained unchanged for many years. In every instance, despite this long period of inactivity, the relief of the pressure by incising the sheath of the nerve has resulted in a marked improvement. He presents four recent cases.

Uveoparotid Tuberculosis.—Tanner and McCurry present three cases of uveoparotid tuberculosis. In the first, uveitis and unilateral parotitis were accompanied by facial paresis, optic neuritis, dysphagia and palatal paresis. Mediastinal adenitis, probably tuberculous in nature, was demonstrated. In the second case uveitis and bilateral parotitis and left sided facial paresis occurred. A biopsy of the parotid gland gave definite evidence of tuberculosis and there was also evidence of the same infection in the lungs. The third case showed extensive uveitis in both eyes, leading to blindness in one, unilateral parotitis and facial paresis; there was a family history of tuberculosis and roentgen evidence of chronic pleurisy. The authors state that when death occurs it is due to miliary tuberculosis. This statement is based on the only three necropsies reported. An interesting feature of two of these, Souter's and Garland and Thomson's, was the presence of tuberculosis of the cardiac musculature. The authors were unable to demonstrate by clinical or electrocardiographic investigation any such involvement in their cases.

Glasgow Medical Journal

4: 225-284 (Dec.) 1934

Rabelais: Physician and Humanist. E. H. L. Oliphant.—p. 225.
Review of Burn Cases Treated in the Glasgow Royal Infirmary During Past Hundred Years (1833-1933), with Some Observations on Present-Day Treatment. J. Dunbar.—p. 239.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

41: 853-1064 (Dec.) 1934

Treatment of Genital Prolapse W. F. Shaw.—p. 853.
Postnatal Development of Genital Organs in the Albino Rat: Discussion of New Theory of Sexual Differentiation. B. P. Wiesner.—p. 867.
*Breech: Method of Dealing with Aftercoming Head. J. W. Burns.—p. 923.
*Technic for Delivery of Breech with Extended Legs in Primiparas. C. M. Marshall.—p. 930.
Surgical Anatomy of Presacral Nerve. A. A. Davis.—p. 942.
Basis and Significance of Antispasmodic Control of Labor. J. Kreis.—p. 955.
Spontaneous Intrapartum Rupture of Uterus in Case of Placenta Praevia. H. D. De Sa.—p. 963.
Our Efforts to Improve Obstetric Results. C. Burger.—p. 968.
Eclampsia (1933): Case. H. Paramore.—p. 978.
*Changes in Ovaries of Pregnant Women and Female Rabbits as Result of Autoreaction of Zondek-Aschheim. J. Rosenblatt and F. Nathan.—p. 983.

Method of Dealing with Aftercoming Head.—Burns deprecates any assistance being given to the descent of the presenting part by abdominal or fundal pressure in the treatment of the normal breech. Such interference may encourage early separation of the placenta. In the fully flexed breech the arms and shoulders soon follow the birth of the umbilicus, and it is at this stage that the head is entering the pelvis. The child's body is allowed to hang from the vulva. This brings about flexion of the head and brings the nape of the neck well into the subpubic angle. The suboccipital area of the child's skull is in contact with either (1) the back of the symphysis pubis or (2) the ischiopubic rami. The child's body weight forces the head to rotate on its horizontal axis. This method of producing flexion acts whether the head is just above the brim or whether it has already entered the pelvic cavity. When the head is already in the pelvic cavity, flexion is still necessary in order that the shortest diameters of the head will stretch the perineum and distend the vulva. In this way lacerations may be avoided and the head does not suffer undue stress. In the delivery of the head the operator should stand sideways to the buttocks of the patient and use that hand which is farther away from the mother. Only one hand should be used in lifting the child up over the mother's abdomen. The ankles must be seized when in their most dependent position, and tension applied to the legs by traction. This tension must be sufficient to keep the neck taut and should be maintained throughout the lifting. The fetal head is forced to rotate about the point of contact between the suboccipital area and the ischiopubic rami. The perineum and vulva are distended in turn by the suboccipitomental and the suboccipitofrontal diameters and finally by the suboccipitobregmatic circumference. If the weight of the child's body is not sufficient to bring the head into the pelvis, suprapubic pressure may be applied. This must be performed by the operator himself. The infant's feet are seized and tension is applied by the right hand, while with the left hand, placed directly above the pubes, pressure is applied in the axis of the brim so as to force the head through the inlet and to pass the hollow of the sacrum. This combined method of applying tension to the legs and suprapubic pressure to the head will successfully deliver the infant in almost all cases. In cases of breech delivery, separation of the placenta is not wholly a third stage phenomenon as it is in cases in which the head is delivered first. At the time when the head is

entering or has entered the pelvic cavity, so much contraction and retraction of the empty upper segments are possible that the placenta, if not actually separated from the uterine wall and retained only by the membranes, has at least ceased to function physiologically.

Delivery of Breech with Extended Legs. — Marshall submits a technic for breech delivery with extended legs which considers the left sacro-anterior position. The delivery is begun when the anterior buttock is visible through the vulva and the posterior buttock is impinging on the perineum. The buttocks of the mother are brought to the end of the table and the legs are placed in the lithotomy position. The bladder is emptied by catheter. With the finest hypodermic needle the region of the posterior edge of the vulva is infiltrated intradermically and subcutaneously with a few cubic centimeters of a 0.5 per cent solution of procaine hydrochloride. A 3-inch needle is inserted through this area and a fanlike superficial and deep infiltration of the whole perineum and lower part of the posterior vaginal wall is carried out. Care should be taken to ensure that the skin in the area of the proposed episiotomy is rendered completely anesthetic. Gentle ironing of the pelvic floor is proceeded with. The index finger of the right hand is now passed up behind the symphysis into the anterior groin. Steady groin traction is then made throughout the whole duration of the succeeding pains. From five to ten pains, reinforced by the groin traction, are required to bring the anterior buttock completely beneath the pubes and the posterior one firmly against the bulging perineum. At this moment a mediolateral episiotomy is made on the same side as that on which the sacrum is descending. The traction is continued and usually with the next pain the buttocks are born. Chloroform is administered immediately on an open mask. With continued traction, or the momentum gathered with the last pain, birth as far as the umbilicus or the popliteal spaces takes place. Pressure in the popliteal spaces, directed away from the midline, flexes the legs on the thighs and detaches the feet from the vulva. A loop of cord is drawn down. The buttocks are grasped with the thumbs over the sacrum, and gentle tension is maintained. No set rule is followed with regard to the moment when the arms should be brought down. If the scapulae or the axillae readily appear at the vulva, the arms are probably flexed and thus delivery is accomplished with ease. The posterior arm is sought as soon as a definite resistance to further traction is experienced. The ankles are grasped with the left hand, the trunk is raised so that the infant's abdomen approaches the mother's right groin, while the right hand is passed up over the right shoulder and the bend of the elbow reached with the tips of the fingers. The arm is flexed and brought down over the chest and through the vulva. A little further traction, at the same time depressing the body, will frequently bring the anterior scapula into view, and the bend of the arm can usually be reached with two fingers. The elbow is flexed and the arm swept out. As soon as the arms are delivered, the body is released gently and allowed to hang from the vulva. In about half of the cases the amount of visible neck will lengthen and in a few cases the trunk may be seen to undergo a short sharp drop, the head having entered the pelvic cavity. The ankles are grasped again in a towel and the delivery of the head effected by adopting the stance and the leg traction method described by Burns.

Changes in Ovaries Resulting from Autoreaction of Zondek-Aschheim.—From their clinical observations, as well as from experiments, Rosenblatt and Nathan state that in ovaries of women and rabbits during pregnancy the same changes appear that may be found in immature mice or rabbits after the injection of urine of pregnant women. These changes are less marked than after numerous injections of hormones of the anterior pituitary body, because during pregnancy the action of the hormone is not so intense. The occurrence of the Zondek-Aschheim reaction in ovaries of pregnant rabbits does not agree with Zondek's statement that an overproduction of hormones of the anterior pituitary body is to be noticed only in primates during pregnancy. To discover whether the changes that they observed in the ovaries are of a temporary character the authors isolated the rabbits after delivery and from four to eight weeks later they took out the second ovary. The changes were no longer visible. The ovary was small, there were no hemorrhagic spots, the surface of the ovary was smooth without any corpora lutea atretica and there were numerous normal graafian follicles, proving to them that the changes were the result only of pregnancy.

Lancet, London

2: 1263-1322 (Dec. 8) 1934

The Hippocratic Ideal. J. A. Ryle.—p. 1263.
Some Aids to Tidy Operating. W. H. Ogilvie.—p. 1268.
Etiology and Mortality Rate of Hematemesis. F. F. Hellier.—p. 1271.
Symptomatology of Insulin Hypoglycemia. A. M. Cooke.—p. 1274.
Point of Entry in Tuberculous Infection. C. Cameron.—p. 1275.
*Histidine Treatment of Peptic Ulcer: Note on Fifty-Two Cases. E. Bulmer.—p. 1276.

Histidine Treatment of Peptic Ulcer.—Bulmer treated fifty-two unselected cases of peptic ulcer with histidine. So far as possible histidine has been the sole treatment and, except in three cases, the treatment has been ambulatory. Treatment consisted of the daily intramuscular injection for three weeks of 5 cc. of a 4 per cent solution of histidine: local and general reactions were not encountered and in two cases 20 cc. was given daily for three weeks without demonstrable ill effects. The immediate results of histidine treatment, if expressed in percentages, are: (1) 58 per cent of symptomatic cures with disappearance of the abnormal roentgen observations, (2) 19 per cent of symptomatic cures with persistence of some roentgen abnormality and (3) 23 per cent of failures. In a follow up, three patients relapsed and one of the apparent failures improved—the cases of gastric ulceration seemed more amenable than those of duodenal ulcer, and those with a shorter history tended to react more favorably than those with a longer history. The results with histidine seem to be better than those of the more orthodox methods and quicker of achievement, while treatment on ambulatory lines has much to commend it.

Medical Journal of Australia, Sydney

2: 665-706 (Nov. 24) 1934

The Sir Richard Stawell Oration. C. B. Blackburn.—p. 665.
Chronic Intestinal Toxemia in Children. F. N. Le Messurier.—p. 672.
Fracture of Shaft of Femur. J. C. Storey.—p. 675.
Fractures of Shaft of Femur. L. G. Teece.—p. 679.
Juvenile Rheumatism. L. Hughes.—p. 682.

2: 707-736 (Dec. 1) 1934

Treatment of Surgical Injuries Following Childbirth. H. H. Schlink.—p. 707.

South African Medical Journal, Cape Town

8: 821-860 (Nov. 24) 1934

The Practice of Eugenics. P. W. Laidler.—p. 823.
Bacillary Dysentery in Salisbury, Southern Rhodesia. W. D. Alves.—p. 835.
Reminiscences of an Old Fossil. H. Caiger.—p. 837.
Psychotic Epidemic Encephalitis: Case. D. A. van Binnendyk.—p. 839.
Bovine Tuberculosis in Relation to Man. B. F. Sampson.—p. 842.

Journal of Oriental Medicine, South Manchuria

21: 67-94 (Nov.) 1934

Leprosy Among Natives of Manchuria. K. Y. Yu.—p. 67.
Gross Method of Staining for Frozen and Paraffin Sections. H. S. D. Garven.—p. 72.
Subtotal Division of Sensory Root of the Fifth Nerve for Treatment of Trigeminal Neuralgia: Report of Two Cases. C. Chang.—p. 74.
Accelerating Action of Bile in Creating Erythrocytes. S. Oyamada and S. Yamaguchi.—p. 77.
Chemical Components of Urine of Smokers and Nonsmokers. C. Tsuru, M. Sugiura, M. Fukushima and T. Hirota.—p. 78.
Pathologic and Histologic Study of Nerve Center System in Morphinism: Part IV. Experiments on Guinea-Pigs. A. Hayashi.—p. 79.
Id.: Part V. Experiments on White Rats. A. Hayashi.—p. 81.
Id.: Part VI. Experiments on Mice A. Hayashi.—p. 83.
Id.: Part VII. Experiments on Domestic Fowls and Frogs and General Conclusion. A. Hayashi.—p. 85.
Trichina Found in Dogs in South Manchuria. T. Yugawa.—p. 88.
Investigations in Amebic Dysentery: V. Cultivation of Endamoeba Histolytica. Y. Yamamoto.—p. 89.
Id.: II. Experimental Studies on Amebic Dysentery in Rats: Part II. Amebic Dysentery in Rats in Chronic Stadium as Well as on Significance of House Rats as Vectors of Transmission of Amebic Dysentery. E. Kitabatake.—p. 90.
Comparative Study of Mental and Thermal Sweating on Human Axilla. K. Ogata.—p. 92.
Influence of Repeated Applications of a Hot Air Bath on Activity of Sweat Glands. S. Ito and J. Adachi.—p. 93.

Paris Médical

2: 457-468 (Dec. 8) 1934

*Action of Concentrated Splenic Extract in Certain Dermatoses and in Asthma. Pasteur Vallery-Radot and P. Blamoutier.—p. 457.
Contribution to Study of Blood Sedimentation: Methods of Blood Sedimentation. A. I. Raponsky.—p. 461.

Action of Splenic Extract in Dermatoses and Asthma.—Pasteur Vallery-Radot and Blamoutier discuss splenotherapy in certain disorders. The splenic extracts which they used at first were painful because of insufficient removal of albumins. The aqueous extracts later employed were practically painless and as a rule produced no generalized reactions. The principal indication for splenic therapy is oozing eczema in the acute state. The effect of the extract is often rapid and may be lasting and final. The pruritus accompanying the eczema may decrease markedly even though the eczema is not definitely modified. The authors have, however, never seen appreciable improvement in the chronic dry eczemas. The results in urticaria are less satisfactory and apparently it is only the urticarias of digestive origin that may be modified by this treatment. In Quincke's edema, splenic extract has no action. Frequently the extract exerts a favorable action on the general condition, such as increased weight and improved appetite. In forty-nine cases of eczema treated by them, twenty-one cures were obtained. In twelve others, marked improvement also occurred. Of thirty-five cases of urticaria there were eight cures and seven notably improved. In three cases of Quincke's edema, complete failure occurred. Seventeen cases of various types of asthma were treated, but only four were materially modified. The authors thus believe that in cases of selected type the results may be favorable.

Presse Médicale, Paris

42: 2053-2076 (Dec. 22) 1934

*Scapulobrachial Algesias and Their Treatment by Physical Agents. G. Chaumet.—p. 2053.
Arterial Topography of Lung. Lopo de Carvalho and J. Rocheta. —p. 2057.
*Pigmentary and Osseous Larval Form of Neurofibromatosis. H. Grenet, R. Ducroquet, P. Isaac-Georges and M. Macé.—p. 2060.
Clinical and Therapeutic Aspects of Pulmonary Tuberculosis Among Malaria Patients. E. Benhamou and R. Abecassis.—p. 2063.
Investigations on Myopathies. D. Paulian.—p. 2067.
Total Ectopia of Stomach in Right Hemothorax with Colic Hernia. A. Cain and J. Olivier.—p. 2071.
Rôle of Nutrient Arteries of Long Bones in Callus Formation and Calcification of Medullary Cavity. K. Houang.—p. 2074.
Axillary Depilation in Course of Hepatic Cirrhoses. A. Jacob.—p. 2076.

Scapulobrachial Algesias and Their Treatment.—Chaumet observed forty cases of persistent shoulder pain with certain limitations of movement. Ordinary periarthritis accounts for some. It is characterized by spontaneous pains in the shoulder, more or less active at rest, acute suffering on some motions of the arm and two zones of tenderness to pressure: one externally under the point of the acromion, the other anterior to the head of the humerus and descending along the tendon of the biceps. Finally atrophy of the deltoid accompanies periarthritis when it has been of long duration. In the presence of this clinical picture, roentgenoscopy is necessary. This may be entirely negative, may show a normal shoulder but a lesion or anomaly of the cervical column, or may show some particular pathologic change of the shoulder itself. The author lists five conditions of the shoulder that may be found: (1) diffuse decalcification of the articular segments or the humerus alone, (2) direct evidence of an old traumatism, as, for example, fracture of the large tuberosity with or without decalcification, (3) presence of osteophytes, (4) rugosities of the periosteum extending along a face of the surgical neck of the femur, and (5) calcification of the subacromial bursa. The best treatment, he believes, is by roentgen therapy. Infra-red radiation and diathermy are also of benefit in some instances.

Pigmentary and Osseous Form of Neurofibromatosis.—Grenet and his co-workers describe several cases of skin pigmentation often associated with various types of bony disorders which are closely allied to Recklinghausen's disease. They were able to collect fifteen cases in about a year. This form, or its skeletal changes, is relatively frequent. A pure osseous form probably exists but is much more difficult to identify. They have almost come to the conclusion that in the majority of the cases the pigmentary and osseous complex is more a stage of evolution of neurofibromatosis than a definite larval form. The practical conclusion is that Recklinghausen's disease, especially such larval forms, must be recalled as a common factor in osseous disorders. When suggestive bony abnormalities exist, one must search carefully for Recklinghausen's disease in the family tree.

Policlinico, Rome

42: 89-128 (Jan. 21) 1935. Practical Section

*Congo Red Test in Different Forms of Hepatic Diseases. R. del Zoppo. —p. 89.
Clinical Roentgenologic Contribution to Study of Congenital, Osseous and Articular Syphilis. G. Liuzzo.—p. 95.
Contribution to Technic of Blood Transfusion: New Apparatus. P. Bosi.—p. 99.

Congo Red Test in Hepatic Diseases.—Del Zoppo used the following technic in testing twenty-eight patients presenting various diseases of the liver: Five cubic centimeters of the patient's blood is taken from one arm and is placed in a tube containing 1 cc. of a 5 per cent solution of sodium citrate. This is followed by immediate injection in the arm of 1 per cent congo red in physiologic solution of sodium chloride. After four and sixty minutes respectively from the time of injection, 5 cc. of blood is removed from the other arm and each specimen is placed in a separate tube containing 1 cc. of the same solution of sodium citrate. The tubes are placed on ice for several hours and afterward are centrifugated. The normal plasma is decanted with a standard 1:10,000 solution of congo red (1 cc. of normal plasma plus 1 cc. of congo red solution plus 9 cc. of distilled water). The decanted plasma is compared with the remaining two diluted plasmas (1 cc. of plasma and 10 cc. of distilled water) by means of the colorimetric method and artificial light. The amount of color retained in the plasma is next determined. The hepatic function of all patients was studied by means of the glycemic and the amino acid curves. The author found the test an important aid to the study of hepatic function. It is applicable to diseases of the kidney presenting reticulohistiocitary lesions. Congo red in general ranks equally with other chromodiagnostic tests in the study of the recticulo-endothelial system. In hepatic diseases with acute and chronic intense biliary stasis, the amount of color in the plasma was high. The color rate was average in diseases with mixed lesions, such as various forms of cirrhosis, hepatic syphilis, neoplasms and abscesses of the liver, all having combined parenchymal and reticulo-endothelial lesions. In diseases with a parenchymal disturbance and a retention of the biliary pigment in the blood, the rate of color was markedly high. This must be attributed to a saturation of the reticulo-endothelial elements on the part of the biliary pigment.

Rivista d'Ostetricia e Ginecologia Pratica, Milan

16: 467-510 (Nov.) 1934. Partial Index

Clinical Considerations on Treatment of Syphilis During Pregnancy. R. Sassi.—p. 470.
*New Sign Indicating Expulsion of Fetus After Intra-Uterine Death: Causes of Determination of Labor by the Fortieth Week. P. Talamo. —p. 483.

Expulsion of Fetus After Intra-Uterine Death.—Talamo states that the appearance of painful intense turgor of the breast associated with profuse milk secretion during the last half of pregnancy is an unmistakable sign indicating imminent expulsion of the fetus after intra-uterine death. The author discusses the mechanism of production of the sign in its relation to that of the production of uterine contractions by which the onset of labor is determined. According to the hypothesis of the author there is during pregnancy an equilibrium between estrogenic substance and the antithetical hormones (lutein and luteinizing factor of anterior pituitary-like principle during the first half of pregnancy and other undetermined hormones during the last half). The rupture of this equilibrium, either normal or pathologic, results in the production of the uterine contractions which determine the onset of labor. Normally the hormonic equilibrium is disturbed by the fortieth week because of the accumulation of estrogenic substance in the blood. When the fetus dies in the uterus before term, the quantity of estrogenic substance is not enough to disturb the hormonic equilibrium, which later breaks down by the decrease of the antithetical hormones in the blood, since their production stops as soon as the fetus dies. The hormone unbalance is reached

during the time elapsed between the death and the expulsion of the fetus. When for some unknown reason, probably related to the death of the fetus, the hypophysis develops a hyperactive function during this period, a large quantity of hypophyseal hormones is thrown into the blood and their action prevails over that of estrogenic substance. In these cases the sign described by the author appears. The intense lacteal and mammary symptoms, caused by the action of the prehypophyseal hormones, are the first to appear and their appearance indicates a more or less immediate expulsion of the fetus by the oxytocic action of the posthypophyseal hormones. In the author's two cases a dead fetus was expulsed within twenty-four hours of the appearance of the sign.

Prensa Medica Argentina, Buenos Aires

21: 2345-2390 (Dec. 12) 1934

Surgical (Extrapharyngeal) Scarlet Fever. R. Cibils Aguirre and F. N. Cosentino.—p. 2345.
Mechanism of Mercurial Diuresis. J. J. Beretervide and C. Rechniewski.—p. 2362.
*Reactivation of Latent Malaria by Calcium Chloride Injections. C. A. Videla.—p. 2378.
Surgical and Climatic Therapy of Coxalgia. O. A. Marottoli.—p. 2380.

Reactivation of Malaria by Calcium Chloride.—Videla attempted to produce the reactivation of latent malaria by the administration of either berberine sulphate, by the oral or intramuscular routes, or epinephrine chloride, by the intramuscular route, and obtained 100 per cent negative results in eighteen cases. Daily intravenous injections of 10 cc. of a 10 per cent solution of calcium chloride gave 66.5 per cent positive results in six cases. The reactivation of latent malaria by calcium chloride is produced as early as the first, second or third injection and coincides with a positive Henry ferroflocculation test (+ or ++) and with the existence of splenomegaly of the first or second degree. Monteleone, who originated the method of administration of calcium chloride injections used by the author, explained the action of calcium chloride as caused by a vasomotor reaction by which the malarial parasites appear in the blood.

Semana Médica, Buenos Aires

41: 1661-1732 (Nov. 29) 1934. Partial Index

*Restitution of Endocrine Functions by Uterine and Ovarian Grafts After Gynecologic Surgery. C. R. Cirio and E. G. Murray.—p. 1661.
Hyperlaxity of Joints in Congenital Syphilis. J. B. Galand.—p. 1704.
Coma, Syncope and Collapse: Diagnosis and Treatment. D. Boccia.—p. 1707.
Needle and Technic for Injections in Epidural and Peridural Spaces. E. S. Sammartino.—p. 1720.

Restitution of Endocrine Functions After Gynecologic Surgery.—Cirio and Murray say that either ovarian or endometrial grafts, implanted after hysterectomy and ovariectomy, undergo a rapid process of degeneration with early reabsorption of the graft. Ovarian and endometrial grafts, simultaneously implanted immediately after hysterectomy and ovariectomy in distant structures (the omentum and a superficial vein in the forearm, respectively, in the experiments of the authors), "take" and show life and normal histologic characteristics six months after their implantation. Ovarian and endometrial grafts, simultaneously implanted immediately after hysterectomy and ovariectomy in the same structure and in contact with each other, undergo manifest lytic changes. The results of these experiments verify the previously reported concept of the existence of a synergic activity between the ovary and the uterus. The authors found that the great omentum is the seat of selection for the implantation of ovarian grafts, which show life and normal functions one year after their implantation. The endothelial surface of the internal vena saphena is the seat of selection for the implantation of the graft when, because of its aseptic conditions if ovarian or its nature if endometrial, it cannot be left in the great omentum. Ovarian and endometrial autografts and homografts, implanted immediately after oophorectomy and hysterectomy, respectively, give satisfactory results in preventing the symptoms of endocrine insufficiency, which regularly follow those operations. The symptoms of endocrine insufficiency do not appear or, if they do, they are greatly attenuated by timely grafting, both when menstruation continues regularly and when it does not. As a rule, grafts performed late after mutilating operations do not give satisfactory results. The graft took and gave satisfactory results in only one patient out of five in whom ovarian homografts were implanted eighteen days after oophorectomy. Menstruation in the patient was regular after grafting and she had an increased basal metabolism (44.3 per cent). The authors state that one should resort to ovarian and endometrial autografts and homografts immediately after mutilating operations of the reproductive organs in women in order to reestablish the endocrine functions.

Archiv für Gynäkologie, Berlin

158: 505-764 (Dec. 19) 1934. Partial Index

*Intermediate Metabolism During Pregnancy: Fat Content of Food and of Blood. O. Bokelmann and A. Bock.—p. 505.
*Adrenalotropic Substance of Anterior Lobe of Hypophysis. K. J. Anselmino, L. Herold and F. Hoffmann.—p. 531.
Mode of Infection and Primary Complex in Tuberculosis of Female Genitalia. H. Kienlin.—p. 550.
*Histology of Anterior Lobe of Hypophysis in Castration Obesity. K. W. Schultze.—p. 555.
Regulation of Hypophysis by Ovary. C. Clauberg and W. Breipohl.—p. 567.
Theca Interna-Wedge Preparing the Way for Follicle. E. Strassmann.—p. 628.
Development of Human Vagina from Formation of Distal Portion of Müller's Vagina to Beginning Replacement of Müller's Epithelium by Sinus Epithelium. R. Meyer.—p. 639.

Intermediate Metabolism During Pregnancy.—Bokelmann and Bock point out that in former studies on fat metabolism they observed that pregnant women respond to a fat tolerance test with a considerable increase in the acetone bodies of the blood and that the elimination of the total acetone, but particularly of the beta-oxybutyric acid, is considerably increased in the urine, while in nonpregnant women, although the elimination of acetone is increased, the beta-oxybutyric acid remains unchanged. The studies reported here were begun on the basis of the observation that the fats form acetone bodies, which, in case of abstention from carbohydrates or under the influence of oral fat tolerance tests, are eliminated in the urine in considerable quantities, especially in pregnant women. They conclude that the blood and the urine of pregnant women contain a larger amount of acetone bodies than the blood and the urine of nonpregnant women. The blood of pregnant women contains also much larger amounts of fatty acids than does that of nonpregnant women. Following the oral administration of large quantities of fat, while at the same time the diet contains relatively large amounts of carbohydrates, the blood contains more fatty acids and more acetone bodies and the urine likewise has more acetone bodies. These reactions are much greater in pregnant than in nonpregnant women.

Adrenalotropic Substance of Hypophysis.—Anselmino and his associates show that the anterior lobe of the hypophysis contains a substance that produces in rats and mice histologic changes in the adrenal medulla. These changes are characterized by reduction of the chromaffin substance, formation of vacuoles in the marrow cells and hyperemia of the blood spaces. They are noticeable two hours after a single injection of the active substance, and they reach their maximum from six to twelve hours after the injection; however, they are demonstrable also in the prolonged experiment. Control tests prove that the changes of the marrow cells are specific for the extract of the anterior lobe of the hypophysis. The physical characteristics of the hypophyseal substance that acts on the adrenal medulla are essentially the same as those of the other extracts of the anterior lobe of the hypophysis. In attempts to separate the adrenalotropic substance from the other hormones of the anterior lobe of the hypophysis it was found that it is not identical with the thyrotropic, the pancreatropic and the corticotropic substance, the hormones of the fat and of the carbohydrate metabolism, and the gonadotropic hormone. Its differentiation from the corticotropic hormone permits the separate modification of the adrenal cortex and medulla. The authors discuss whether the changes in the adrenal medulla were the manifestations of a stimulation of the medulla and answer this question in the affirmative. Finally they consider the blood sugar action of the substance and discuss the possible identity of the adrenalotropic substance with the blood sugar increasing substance of the anterior lobe of the hypophysis (the contra-insular hormone of Lucke and the diabetogenic substance of Houssay).

Anterior Lobe of Hypophysis in Castration Obesity.—Schultze determined the histologic behavior of the anterior

lobe of the hypophysis in castrated female rats. He observed a difference in the number of basophilic cells in animals with and without castration obesity. Animals that gained a considerable amount of weight following castration had more basophilic cells than those that did not. The authors call attention to similarities with Cushing's pituitary basophilism and with the constitutional obesity of Kraus.

Beiträge zur Klinik der Tuberkulose, Berlin

85: 543-700 (Dec. 18) 1934. Partial Index

Experiences with Paraffin Filling in Caverns of Upper Lobes. A. Neddermeyer.—p. 543.
Roentgen Diagnosis of Tuberculosis of Larynx. H. Adler.—p. 556.
*Pathogenesis and Clinical Significance of Palpable Metastases of Lymph Nodes in Pulmonary Tumors. M. Takino.—p. 561.
*Prevention of Postoperative Wound Complications in Thoracocautery According to Jacobaeus. A. Sattler.—p. 606.
Biologic Properties and Pathogenic Action of So-Called Non-Acid-Fast Tubercle Bacilli. H. Mollgaard.—p. 616.
Value of Supravital Staining of Leukocytes, Particularly for Examination of Blood Picture in Tuberculosis. H. Nolte.—p. 664.
*New Method of Culturing Tubercle Bacilli from Punctates. J. Sorgo.—p. 675.

Palpable Metastases of Lymph Nodes in Pulmonary Tumors.—In a patient who had a tumor in the left pulmonary hilus, Takino observed that the first metastasis was not in the left supraclavicular lymph nodes but in those of the right side. He points out that in case of abdominal tumors, particularly cancer of the stomach, the left supraclavicular gland (so-called Virchow gland) is most carefully examined for metastases. Later he observed three cases of pulmonary neoplasm, in which the tumor was in the left upper lobe, in the left hilus, and the metastasis was only in the right supraclavicular lymph nodes. This indicates that in case of pulmonary and mediastinal tumors not only the left but also the right supraclavicular lymph nodes should be examined. The author watched the mode of metastatization in fifteen other patients, most of whom had pulmonary tumors and a few of whom had mediastinal tumors. He found that, if the tumor is located in the upper lobe and spreads toward the surface and the apex of the lung, the first metastases develop in the homolateral supraclavicular lymph nodes. If the tumor is near the hilus, the metastasis is at first on the contralateral side. If the tumor is in the pleura, metastatization takes place in the homolateral axillary lymph nodes. In case of metastasis in the homolateral supraclavicular lymph nodes the tumor must be in the upper lobe somewhat removed from the mediastinum and not near the main lymph vessels. In case of metastatization in the supraclavicular lymph nodes of the opposite side, the growing tumor exerts pressure on the chief lymph channels and the cancer cells are carried through anastomoses to the opposite side. Not all metastases can be explained on the basis of the anatomic conditions of the system of lymph vessels, for the retrograde transport or the "paradoxical lymph stream" may play a part. If the cancer cells are carried to the homolateral supraclavicular lymph nodes, even if pressure was exerted in the beginning on the main lymphatic channels, it must be assumed that either not all channels were compressed or new lymph channels had been formed. In most cases metastatization takes place early, within two months after the appearance of the first symptoms. They help to localize the tumor.

Prevention of Postoperative Wound Complications in Thoracocautery.—Sattler discusses two typical complications of endothoracic pleuroscopy and pleurolysis; namely, postoperative emphysema and suppuration of the thorax wound. Both complications are hardly ever of vital significance, but they annoy the patient, impair the immediate result of the intervention and eventually may impair the final results. To prevent emphysema, careful management of the operative wound is important. If a large instrument has been used, it is not sufficient merely to close the cutaneous wound, for a comparatively large muscular wound would remain and nothing would prevent the air from entering the tissues. It is necessary to close the wound in layers. He further shows how postoperative suppurations may be caused by tissue injuries that are caused by prolonged duration of the operation, by bruising and drying of the wound. If this is the case, the wound should be freshened by excision before the suture is made, for thus healing by primary intention may be obtained. To prevent specific infection of the wound, the intervention should be omitted in case of extensive, caseous tuberculosis of the pleura.

Method of Culturing Tubercle Bacilli from Punctates.—Sorgo places a small quantity of the punctate to be examined in test tubes that contain culture medium. According to the width of the test tube the amount is 0.5 or 1.5 cc., the object being to introduce such a quantity that about three fourths of the surface of the culture medium remains free. After the test tube has been closed, it is inclined several times so that the punctate runs over the surface of the culture medium. In the incubator the tubes are left in the vertical position, but the process of moving the tubes is repeated from time to time (about four times each week) during the entire period of incubation; that is, for at least two months. However, the moving should be done with great care, to give the organisms the opportunity to adhere to the surface without being flooded off again. The author employed stained egg culture mediums, a red and green one for each punctate. He employed this method for the examination of various exudates and punctates from serofibrinous pleurisy, pneumothorax, tuberculous empyema, tuberculous peritonitis, tuberculous pericarditis, tuberculous meningitis, tuberculous articular exudate and the pus of tuberculous glands. Of 123 cases, 103 gave positive results. The method was proved particularly valuable in the spinal punctates from patients with tuberculous meningitis; of eighteen cases, seventen gave positive results. The method is simple and reliable, and it can be used for all clinical and diagnostic purposes.

Klinische Wochenschrift, Berlin

13: 1809-1848 (Dec. 22) 1934. Partial Index

Relation of Heavy to Light Water in Organism. F. Breusch and E. Hofer.—p. 1815.
Cevitamic Acid and Blood Catalase: Determination of Deficit of Vitamin C. G. Török and L. Neufeld.—p. 1816.
*Pregnancy and Physical Exertion. C. Schroeder and W. Franz.—p. 1818.
Phytopharmacologic Experiments According to D. J. Macht. G. Kingisepp.—p. 1820.
Syphilis of Stomach in Boy with Congenital Syphilis. H. Kalk.—p. 1823.
*Experiences in Treatment of Nontuberculous Pleural Empyema by Means of Combined Irrigation and Iodized Oil Treatment. R. Boller and K. Makrycostas.—p. 1825.
Functional Test of Cardiopulmonary System. E. Simonson.—p. 1831.

Pregnancy and Physical Exertion.—Schroeder and Franz determined the working capacity of women during pregnancy and compared it with the working capacity four months after delivery. The period of recovery, that is, the time the circulation and metabolism require to return to normal after an exertion, was found to be longer during pregnancy than in the absence of pregnancy. The authors think that this indicates a certain instability of circulation and metabolism in pregnant women but that this instability is not observed during the exertion. They conclude that work requiring light and medium exertion may be done up to the end of pregnancy without detrimental effects on the pregnant organism. They consider it false humanitarianism to forbid a pregnant woman to work, and they maintain that work is the best preparation for the delivery and prevents worrying and anxiety.

Irrigation and Iodized Oil Treatment of Empyema.—Boller and Makrycostas review the treatment of empyema by means of irrigation and injection of iodized oil, which was described by Boller in the *Wiener Archiv für innere Medizin* (**23**:37 [Oct. 1] 1932; abstr. THE JOURNAL, Dec. 24, 1932, p. 2229), and they describe eight more cases in which they employed this combination of irrigation and iodized oil injections. Whereas in the first report only cases that were treated with irrigation and iodized oil were described, this report includes three cases in which the irrigation and iodized oil treatments had to be followed by Bülau's drainage. The latter was well tolerated and with the aid of regular fillings with iodized oil the treatment could be successfully concluded in a comparatively short time. The authors recommend that first in every case of pleural empyema the treatment with irrigation and iodized oil be given several times, for in the majority of cases this therapeutic method will succeed. In empyema of severe septic character, however, it is not sufficient. Here, it should be followed by Bülau's drainage, which in turn should be aided by filling with iodized oil.

13: 1849-1864 (Dec. 29) 1934. Partial Index

Continuous Registration of Composition of Alveolar Air by Means of Gas Exchange Recorder. T. Benzinger and F. Brauch.—p. 1852.
*Action of Growth Hormone of Hypophysis on Hereditary Dwarfism in Mice. T. Kemp.—p. 1854.
*Delivery as Work Process. C. Shroeder and W. Franz.—p. 1855.
Disappearance and Reappearance of Bile Acids in Bile in Temporary Closure of Choledochus. F. Breusch and. C. G. Johnston.—p. 1856.
Direct Demonstration of Lead by Means of Diphenylthiocarbarsone. M. Kasahara and T. Kasahara.—p. 1857.
*Influence of Amyl Nitrite on Cerebrospinal Fluid Pressure in Normal and Pathologic Brains. H. Stefan.—p. 1858.

Action of Growth Hormone on Dwarfism in Mice.—Kemp treated dwarfed mice, in which the inhibition of growth was caused by a hereditary defect of the anterior lobe of the hypophysis, with the isolated growth hormone of the anterior hypophysis. He found that this treatment induced a well proportioned growth in the various organs, including the long tubular bones, which increased considerably in length. The thymus, however, with a luxuriant growth of the parenchyma, grew much more than the other organs.

Delivery as Work Process.—To determine the amount of work the organism performs during the process of delivery, Schroeder and Franz obtained specimens of respiratory air from parturient women at fifteen or thirty minute intervals. They determined the oxygen consumption of seventeen women from the onset of the labor pains until five hours after delivery. They show a curve they obtained in a healthy primipara. The peaks indicate the increased oxygen consumption during a uterine contraction and the depressions represent the consumption during the pain-free interval. During the period of dilatation the curve rises gradually, but during the rupture of the bag of waters and the subsequent pain-free interval it decreases again. The curve reaches the highest peaks during the period of expulsion, for now the work of the uterine muscle is complemented by the pressure of the abdominal muscles. After the birth of the child, the oxygen consumption decreases considerably but it does not reach the preparturient level until four hours later. The oxygen consumption that is normal for the nonpregnant organism is not attained until about eight days after delivery. In comparing the work performance of the delivery of old and young primiparas, the authors were able to corroborate the results obtained by Frey with the hysterotonograph, that the old primipara has to meet the same physiologic requirements in the course of the delivery as does the young primipara. The old primipara consumes during delivery no more oxygen than does the young primipara. The authors studied the effects of various analgesics on the work process of birth and found that the oxygen consumption per unit of time was not reduced under the influence of the analgesics.

Influence of Amyl Nitrite on Cerebrospinal Fluid Pressure.—Tests on normal persons convinced Stefan that the cerebrospinal fluid pressure is much lower when the person is lying down than when he is sitting up and for this reason he advises that the pressure be tested only while the person is lying down. The inhalation of a few drops of amyl nitrite leads to a florid reddishness and a feeling of heat in the face as well as to a cerebral hyperemia. These manifestations are the result of an increased inflow of blood, which is caused by a paralysis of the vasomotor centers with consequent dilatation of the vessels. Its inhalation during lumbar puncture is accompanied by a dilatation of the intracranial vessels and by an increased production and a greater pressure of the cerebrospinal fluid. He studied the pressure changes in 151 persons, of whom sixty-two were normal, twenty-two had space limiting processes, thirty-two had cerebral arteriosclerosis and thirty-five had postencephalitic parkinsonism and other chronic inflammatory cerebral disturbances. He found that the normal persons and those with space-limiting cerebral processes reacted with an enormous increase in the cerebrospinal fluid pressure to the inhalation of amyl nitrite, while patients with cerebral arteriosclerosis or with chronic inflammatory disturbances of the brain showed almost the opposite reaction. He thinks that these tremendous differences in the action of the amyl nitrite are due to the fact that its effect is limited in vascular and in chronic inflammatory disturbances of the brain in that the extent of the vascular dilatation is lesser, that the number of vessels which become dilated is smaller, or that both factors are involved. In a number of patients in whom the diagnosis had not been decided as yet, it was possible to determine it by means of the amyl nitrite action. The subsequent necropsies corroborated the diagnostic value of the method. These observations indicate that the amyl nitrite test is helpful in the differentiation between the space-limiting processes and the chronic inflammatory or vascular disorders of the brain. However, it is not suited for the differentiation between diseased and normal brains.

Wiener klinische Wochenschrift, Vienna

47: 1569-1600 (Dec. 28) 1934. Partial Index

*Tubercle Bacillemia in Course of Acute Polyarthritis. C. Reitter and E. Löwenstein.—p. 1569.
Method of Determination of Creatinine in Urine and Blood. H. Lieb and M. K. Zacherl.—p. 1572.
Diagnosis of Brucella Abortus. E. Lauda.—p. 1578.
Action Mechanism of Di-Iodotyrosine. M. Wachstein.—p. 1579.
*Aid for Palpation of Poorly Palpable Arterial Pulse. J. Wilder.—p. 1583.
*Studies on Reticulocytes in Pulmonary Tuberculosis. M. Szour and C. Bergenbaum.—p. 1583.

Tubercle Bacillemia in Course of Acute Polyarthritis.—Reitter and Löwenstein review their former studies on tubercle bacillemia in polyarthritis, pointing out that in 1928 Reitter first advanced the theory that tuberculosis plays a part in acute polyarthritis. During 1930 and 1931 they examined cases of acute polyarthritis for tubercle bacillemia and concluded that acute polyarthritis is an exudative-inflammatory phase in the course of a tuberculous reinfection. At that time they stressed that tubercle bacillemia alone is not sufficient to produce the symptomatology of acute polyarthritis but that the tubercle bacilli must enter a connective tissue that is highly susceptible to tuberculosis, an allergic or hyperergic tissue. Reitter emphasized in 1928 that in rare instances tubercle bacilli are found in the articular fluid and that at certain times patients with polyarthritis are highly susceptible to tuberculin. The authors deplore that, although they always stressed the clinical manifestations and showed that tubercle bacillemia may be present at the same time, many clinicians, pathologic anatomists and bacteriologists gave their attention only to the bacillemia and took an attitude as if the foundations of the pathologic anatomy of tuberculosis had been attacked. With this attitude many began the search for tubercle bacilli and were gratified when they obtained negative results, in many cases examining only one specimen of blood from each patient. Nevertheless, a few investigators corroborated the authors' observations.

Aid in Palpation of Arterial Pulse.—Wilder calls attention to the fact that it is difficult to detect by palpation the pulse of the dorsalis pedis artery, for even experienced examiners are sometimes unable to agree on their observations. He thinks that this difficulty may be remedied by an old but almost forgotten method; namely, by applying oil to the skin. By putting oil on the dorsum of the foot, the palpation of the pulse becomes much easier. Pulsations that were hardly palpable before become much clearer, and those ordinarily not perceptible now become palpable. In palpating muscles in order to determine areas of hardness, nodules and other pathologic conditions, the application of oil is likewise helpful, for it is much easier to palpate the details in the underlying tissue if the finger glides over a smooth surface. Moreover, "oil palpation" is helpful also in palpating the liver and other abdominal organs.

Studies on Reticulocytes in Pulmonary Tuberculosis.—Szour and Bergenbaum studied the behavior of the reticulocytes in 200 cases of pulmonary tuberculosis. They employed the vital staining of the blood drop according to the method of Levaditi-Ehrlich. After preliminary studies on the reticulocytes of normal persons, which disclosed that in adults the number of reticulocytes varies between one and five per thousand of the erythrocytes, the authors studied the number and then the behavior of the reticulocytes in patients with pulmonary tuberculosis. They found that these studies are valuable in the diagnosis, the prognosis and the evaluation of therapeutic methods. In summarizing their observations they state that the curve of the reticulocytes in the course of pulmonary tuberculosis reflects the combat between the organism and the tuberculous infection in the region of the erythroblastic system of the bone marrow. The quantitative and qualitative changes in the reticulocytes that enter the periphery are exact indicators of the relationship between the intensity of the tuberculous infection and the defense powers of the organism.

Zeitschrift für Kinderheilkunde, Berlin

56: 609-701 (Dec. 5) 1934. Partial Index

Action of Colon and of Paracolon Culture Filtrates on Surviving Intestine of Rabbit. K. Hassmann and Irmgard Scharfetter.—p. 609.
House Epidemic of Disturbances of Typhoid Type Caused by Bacterium Typhi-Murium. H. David and D. Halberstam.—p. 620.
*Significance of Tryptophan Reaction for Diagnosis of Tuberculous Meningitis. H. M. Schumacher.—p. 626.
Clinical Significance of Various Categories of Tuberculin Allergy During Childhood. F. von Gröer and A. von Chwalibogowski.—p. 631.
Attempt to Determine Actual Allergic Condition as Well as Allergic Channel by Determination of Reaction Capacity and Sensitivity in Tuberculin Allergic Organism of Children. F. von Gröer, A. von Chwalibogowski and H. Steinhaus.—p. 669.

Tryptophan Reaction in Tuberculous Meningitis.—Schumacher gives a description of the technic of the tryptophan reaction in tuberculous meningitis. To from 2 to 3 cc. of cerebrospinal fluid is added 15 cc. of a concentrated hydrochloric acid solution and 2 drops of a 2 per cent solution of formaldehyde (prepared fresh each time from the usual 40 per cent solution by preparing a dilution of 1:20), and this mixture is shaken. Then it is allowed to stand for four or five minutes and after that is layered with 2 cc. of a 0.06 per cent solution of sodium nitrite. If the reaction is positive, there appears in the course of two or three minutes, at the site where the two fluids meet, a delicate violet ring. If there is no change of color or if a brownish shade appears, the reaction is negative. The author reports his experiences in 114 cases. In thirty-two cases of tuberculous meningitis the reaction was always positive. In none of the cases of tuberculous meningitis was a negative reaction found. The cerebrospinal fluid of eighty-two patients with nontuberculous disorders of the brain or of the meninges served as a control. Of these, eight gave a positive tryptophan reaction. Seven of the latter were "false" positive reactions that developed in purulent, hemorrhagic or xanthochromic cerebrospinal fluids. In one instance the tryptophan reaction was a complete failure. However, the differential diagnosis was not in doubt in this case, for the presence of a cerebral tumor had been recognized. The author concludes that the tryptophan reaction permits a quick and definite differentiation of tuberculous meningitis from disorders with a similar symptomatology.

Zentralblatt für Gynäkologie, Leipzig

58: 2945-3008 (Dec. 15) 1934

*Term of Ovulation and Conception on Basis of Four Hundred and Sixteen Cases with Exactly Known Single Cohabitation and Subsequent Pregnancy. F. Weinstock.—p. 2947.
*Hormone Disturbances as Cause of Menstrual Disorders: Rôle of Pancreas. B. Liegner.—p. 2952.
Surgical Treatment of Uterine Hemorrhages. Vilma Schrattenbach.—p. 2958.
Pregnancy in Multipara Without Subjective Manifestations. H. Schulz.—p. 2961.
Juvenile Hemorrhage Resulting from Chronic Suppurating Tonsillitis. A. Kuncz.—p. 2964.
Clinical Aspects and Therapy of Suppurated Peritoneal Pregnancy That Was Brought to Term. M. Bordjoschki.—p. 2965.

Ovulation and Conception.—To test the Knaus-Ogino-Smulder theory of the period of physiologic sterility, Weinstock selected 416 women in whom pregnancy had taken place after a single coitus, the exact date of which was known as well as the dates of at least the last three menstruations and the length of the menstrual cycle. The women were healthy. He shows the length of the menstrual cycles and that there are comparatively few women in whom the menstrual cycle is always of the same length. Another table showing the day of the single fertilizing coitus within the menstrual cycle indicates that conception is possible on every day of the cycle but that there are fluctuations in the fertility and that conception is most likely between the fifth and tenth day of the cycle. The author concludes that practical experience indicates that there is no sterile period within the menstrual cycle.

Hormone Disturbances as Cause of Menstrual Disorders.—The observation that pregnancy is rare in diabetic women induced Liegner to investigate whether less pronounced pancreatic disturbances influence fertility. In former investigations he had observed in guinea-pigs that the resection of the pancreas was followed by severe disturbances in the gonads and that fertility was greatly reduced. He now reports that he observed women with a deficient function of the insular apparatus in many of whom menstruation was abnormal. He attempts to explain these menstrual disturbances on the basis of changes in the ovaries of animals the insular function of which had been interfered with. These changes indicate that menstruation may be retarded and reduced in intensity, or, the failure of the formation of a corpus luteum (the absence of the inhibitory factor) may result in atypical, acyclical and prolonged hemorrhages. The author states that he employed insulin in a number of women with menstrual disturbances, in whom various treatments, including the administration of estrus-inducing hormones, had failed. In many instances the results were favorable in that the menstruation became regulated within a comparatively short time. However, precaution is necessary because in the beginning some of these patients do not tolerate insulin well. Moreover, it is generally necessary to repeat the insulin treatment after a certain interval. The first series of insulin injections is usually continued for four weeks.

58: 3009-3072 (Dec. 22) 1934

*Late Sequels of Eclampsia and Its Preliminary Stages, with Especial Consideration of Renal Changes. T. Heynemann.—p. 3010.
Gynecologic-Urologic Significance of Retrograde Ureteropyelography According to Chevassu. G. von Kulitzy.—p. 3021.
Demonstration of Prolapse Bladder in Roentgenogram. E. Philipp and H. Kraatz.—p. 3025.
Plastic Production of Totally Destroyed Urethra. A. Mandelstamm.—p. 3040.
*Surgical Treatment of Urinary Incontinence. W. Mestitz.—p. 3046.

Late Sequels of Eclampsia Particularly Renal Changes.—Heynemann asserts that there is no definite proof that pregnancy nephrosis or eclampsia ever causes chronic glomerular nephritis. If they ever do so, he thinks that it is an extremely rare occurrence. He maintains that the damages caused by eclampsia or pregnancy nephrosis on the renal parenchyma, or the tubules as well as the glomerules, heal as a rule; at any rate they do not produce severe changes. However, eclampsia and pregnancy nephrosis do have a damaging influence on the vascular system, which becomes manifest in headaches, vertigo, increased blood pressure, changes in the vessels of the fundus oculi, cardiac changes, nephrosclerosis and apoplexy. The changes in the cerebral and renal arteries are the most important ones, but eclampsia and its preliminary stages are not the only cause of these changes, for age and hereditary predisposition likewise play a part. However, in approximately 5 to 6 per cent of the cases of eclampsia and pregnancy nephrosis, severe vascular changes occur. As a rule there develops nephrosclerosis, but the more severe manifestations generally do not become evident until after the fortieth year of life. In the pathogenesis of malignant sclerosis and its transitional cases, eclampsia and its preliminary stages play a rather important part. In from 1 to 1.5 per cent of these disorders, the development of a malignant sclerosis or of one of its preliminary forms must be expected. If this is the case, an unfavorable outcome may be expected at an earlier age. If hypertension and albuminuria develop in women who have passed through an eclampsia or its preliminary stages, the existence of a nephrosclerosis and not of a chronic nephritis should be considered first, and, if signs of renal insufficiency appear in women under 40 years of age, malignant sclerosis or one of its preliminary stages should be thought of. The treatment should aim at counteracting the hypertension and the arteriosclerosis. The after examinations never revealed hepatic changes. The author concludes that a former eclampsia or a pregnancy nephrosis do not contraindicate a new pregnancy. A nephrosclerosis, however, particularly its malignant form, may become exacerbated by a new pregnancy.

Surgical Treatment of Urinary Incontinence.—Mestitz points out that the method to counteract the urinary incontinence resulting from a damage of the vesical sphincter must try to imitate the physiologic mechanism. An effort must be made to lift and bend the urethra, particularly its posterior wall, toward the symphysis. This aim is accomplished best by means of the artificial formation of a sphincter from the vesicovaginal fascia. The method can be used in virgins and in multiparas. In most cases urinary incontinence is accompanied by sinking or prolapse of the anterior vaginal wall, and this makes the procedure even more simple. Moreover, the method can be employed in the absence of the uterus as well as in women during the reproductive age. He limits the intervention to the

suture of the connective tissue fascia and dispenses with the exposure of the vesical musculature. In this respect his procedure differs from that of several other surgeons. However, he considers it important that the transverse sutures be made in such a manner that the fascia is grasped far outward in the region of the levator muscle. If this is done, the function of the fascial clasp is effectively supported by the action of the puborectal muscle. In cases of especially severe incontinence or in case of relapse following his fascial suture, the author employs the method of Goebell-Frangenheim-Stoeckel. Goebell formed a substitute for the urethral sphincter from the pyramidal muscles or from a strip of the rectus muscle, while Frangenheim suggested the use of flaps of the anterior rectus sheath. Stoeckel introduced this method into gynecologic surgery. The formation of the sphincter from the vesicovaginal fascia or the Goebell-Frangenheim-Stoeckel method was employed by the author in eleven cases, and the results were favorable in eight. In addition to these two methods, he tried the formation of the urethral sphincter from the bulbocavernosus muscle. This method was successful in six out of eleven cases. He concludes that in uncomplicated, mild or medium severe cases the sphincter formation from the vesicovaginal fascia is the best method and that in more severe cases or in relapses the method of Goebell-Frangenheim-Stoeckel is the most satisfactory.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

32: 1-144 (No. 125) 1934. Partial Index

Symptoms and Therapy of Anaerobic Infection. D. A. Arapov.—p. 3.
Question of Perforative Peritonitis in Typhoid. P. S. Manukyan.—p. 12.
Symptomatology of Exophthalmic Goiter. V. M. Kogan-Yasnyy.—p. 24.
Operations on Thyroid in Exophthalmic Goiter. M. N. Shevandin.—p. 37.
*Relationship Between Clinical Picture and Histologic Structure of Thyroid in Exophthalmic Goiter. M. P. Veber and E. K. Elenevskaya.—p. 41.
*Experimental Conservation of Blood. Yu. M. Irger, P. E. Ginzburg, Z. S. Sosonkin, A. S. Mazeleva, P. Yu. Dobruskina and S. N Verzhynskaya.—p. 53.

Histologic Structure of Thyroid in Exophthalmic Goiter.—According to Veber and Elenevskaya, the thyroids of patients who have exophthalmic goiter and who have been subjected to the preoperative treatment of compound solution of iodine exhibit as a rule the histologic picture of a colloid goiter with pronounced proliferation of the epithelial layer. The authors have not encountered any so-called primary forms of hyperthyroidism in their material. They found the method of Mallory and of Kraus for staining the colloid a valuable histologic procedure in evaluating the severity of the disease. They failed to establish a definite relationship between the histologic picture and the severity of the disease in the cases of exophthalmic goiter treated preoperatively with compound solution of iodine. Preoperative administration of compound solution of iodine brings about an improvement in the clinical picture and a histologic alteration in the direction of diminution of the polymorphism of the follicles and the epithelium. The authors conclude that the essence of the morbid process is to be sought in its hormone activity rather than in the histologic picture of the gland.

Experimental Conservation of Blood.—Irger and his associates drew blood from the femoral artery of a dog and collected it into a vessel containing 50 Gm. of sodium citrate, 7 Gm. of sodium chlorate, 0.04 Gm. of magnesium sulphate and 0.2 Gm. of potassium chlorate in 1,000 cc. of distilled water. The blood was added to this fluid in an equal amount. The authors found that the erythrocytes remained unchanged for about fifteen days, after which period they diminished in number by 12.9 per cent, by 39.6 per cent on the thirty-fifth day and by 76 per cent on the forty-fifth day. Microscopic study showed that the erythrocytes maintained their form until the twentieth day, after which they displayed a gradual shrinkage resembling erythrocyte shadows on the thirty-eighth day. The diminution in the leukocyte count took place much earlier. On the fifth day it was diminished by 7.4 per cent, on the fifteenth day by 27.2, on the thirty-fifth day by 66.6, and on the forty-fifth day by 84.2. The leukocytic formula changes in the direction of diminution of neutrophils and a relative increase in lymphocytes. The number of reticulocytes diminished gradually, there being none present after the forty-fifth day. The lowering of the respiratory function of the erythrocytes (determined after the method of Barcroft) took place slowly and the hemoglobin changed little. The authors have noted a gradual diminution of the glycogen content of the blood. The inorganic blood phosphorus increased up to 10 on the fifth day, 20.5 on the eighteenth and 29.3 on the forty-third day. There was noted a gradual lowering of the osmotic tension of the erythrocytes, and this corresponded to the increase in the inorganic phosphorus. Parallel with the fall in sugar content there was an increase in lactic acid. The authors insist that the strictest asepsis must be maintained in the conservation of blood, such as wearing of a mask and of gloves. Blood may be kept sterile for forty-five days at room temperature. Hemolysis was absent in conserved human blood for twenty-one days and in dog's blood for forty-five. Because of the morphologic and biologic alterations noted, the value of conserved blood for purposes of transfusion is much less than that of the fresh blood.

Vrachebnoe Delo, Kharkov

17: 545-624 (No. 9) 1934. Partial Index

*Focus of Infection in Pathogenesis of True Rheumatism. A. M. Koritskiy.—p. 545.
Roentgenologic Signs of Gastritis. N. M. Bezchinskaya and Ya. J. Levin—p. 549.
Double Invasion—Opistorchis Felineus and Lamblia Intestinalis. A. Ya. Althauzen, O. A. Rozenfeld and P. M. Perchik.—p. 555.
Symptoms of Radiculitis with Trophic Disturbances. L. B. Litvak and V. V. Chernikov.—p. 559.
Injection Therapy of Varicose Veins. S. G. Bukin.—p. 563.
Psychotherapy in Ear Diseases. A. A. Skrypt.—p. 567.
Diagnosis of Acute Leukemia with Tonsil Lesion. N. B. Strier.—p. 569.
Effect of Antiepinephrine on Cholesterol Metabolism. L. M. Golber.—p. 571.

Focus of Infection in Pathogenesis of True Rheumatism.—According to Koritskiy, clinical observations and anatomic and experimental studies indicate the existence in genuine cases of rheumatism of a sepsis with a hyperergic reaction. The author observed that rheumatic patients are chronic carriers of a focal infection located in the pharyngeal region. They are best demonstrated by rotating the tonsil. The peculiarity of such a focus is its painless chronic course characterized by suppuration in the various areas of the pharyngeal region with a selective localization in the supratonsillar, pretonsillar and retrotonsillar sinuses rather than in the tonsils themselves. The infectious process here runs a chronic latent course, with occasional acute exacerbations in the form of acute tonsillitis. Inspection of the tonsils and the adjacent sinuses reveals, as a rule, erosions, ulcerations, indurations, hypertrophy or scar formation. One may observe here all stages of an inflammatory process, from hyperemia and infiltration to breaking down of tissue and suppuration with consequent scar contraction. The process is a tissue reaction to a polymorphous bacterial flora, particularly of the streptococcus group, to bacterial toxins and to the products of the broken down albumins. The author regards such a focal infection not only as a port of entry of infection but also as a lesion capable of influencing the organism as a whole so as to alter its reactivity. The organism reacts to repeated exacerbations in a manner different from its original reaction. There may develop an unusual, abnormal, allergic reaction laying the foundation for rheumatic disease.

Hospitalstidende, Copenhagen

77: 1433-1444 (Dec. 18) 1934

Changes in Blood in Intoxication Due to Cellulose Lacquer. J. Jakobsen.—p. 1433.
*Does Wassermann Reaction Occasionally Occur in Febrile Pulmonary Disturbances? H. Boas and I. C. Neergaard.—p. 1439.

Wassermann Reaction in Febrile Pulmonary Disturbances.—Boas and Neergaard state that with the technic employed at the state serum institute a positive Wassermann reaction in febrile pulmonary disorders seems to be rare (less than 0.33⅓ per cent), yet in view of the results of other investigations they advise a certain degree of caution in judging the serologic test in the presence of an acute highly febrile lung disorder.